INDEX.

List of sub-headings:—AUTHORS, BANKRUPTCY PROCEEDINGS, CITY NOTES, CONTRACTS CLOSED AND OPEN, CORRESPONDENCE, INSTITUTION AND LECTURE NOTES, LEGAL, LIGHTING AND POWER NOTES, LIQUIDATIONS, NEW COMPANIES, NEW ELECTRICAL DEVICES, FITTINGS AND PLANT, OBITUARY, OFFICIAL RETURNS, RAILWAY NOTES, REVIEWS, TELEGRAPH NOTES, TELEPHONE NOTES, TRAMWAY NOTES, WAR ITEMS.

ABERTHAW Cement Works, 34
Accident, Glasgow tramcar, 110
Accidents in mines, The use of electricity and electrical, 333
Accumulator manufacture in Norway, 323
Accumulators, Controlled supply of, 227 419
Aeroplanes, Electrical equipment of German, 542
After the war, export trade, Co-operation for, 190
After the war trade and standardisation, 160
Agriculture, Electricity in, 88, 257
Air compressors and Diesel engines, Lubrication of, 32
Air pumps, An investigation of, 41
Air pumps for high vacua, High efficiency, by E. Jones, 21
Algeria, Coal in, 308
A. E. G. stocks in Australia, Disposal of, 107
Allowances, Income-tax, wear and tear and obsolescence, by J. J. H. Stansfield, 436
Alternator short-circuit currents, Limiting, 136
Aluminium in Austria-Hungary, 491
Aluminium works, New, 270
Aluminium in transformers, 292
Aluminium in U.S.A., Price of, 227
Aluminium industry, French bauxite and, 58
Aluminium, Processes for the manufacture of, 221, 263
Amalgamated Society of Engineers, 87, 107
Amalgamated Society of Engineers, Hull station engineers and the, 161
Amalgamated Society of Engineers and man power, 72, 182
Amalgamation, An electrical, 179
America, Battery *v.* magneto ignition in, 263
American electric steel furnace, A large, 184
American engineers and the forces, 136
American exports of electrical goods, 298
American generating systems, Output of large, 471
American price for copper, 516
American water power, 315
America's electrical Christmas, 89
Anglo-Italian trade relations, 131
Appointments vacant, 16, 41, 64, 89, 112, 135, 161, 182, 208, 232, 257, 278, 305, 329, 352, 375, 398, 424, 447, 472, 495, 519, 543, 567, 593
Apprenticeships, Commercial, 443
Arbitration, Conciliation and, 592
Association of British Electrical Engineers (Electricity Supply Section), 544, 567, 582, 606
Association of Electric Power Engineers, 137, 146, 152, 160, 182, 256, 278, 326, 377, 448, 470, 544, 568, 584, 593, 615.
Association of Great Britain and France (Industry and Economics), 376
Asynchronous generators, 382
Atmospheric nitrogen production in England, 182, 352
Australia, British manufacturers in, 434, 455
Australia, British manufacturing in, 579
Australia, Disposal of A. E. G. stocks in, 107
Australia, Electrical manufacturing in, 71
Australia, Electrical standards in, 149
Australia, Engineering training in, 256
Australia, Import trade of, 86
Australia, Remuneration of professional men in, 111
Australia, Sale of electrical cables in, 611
Australia, "Union Electric Co." of, 420
Australian contracts, 515
Australian electrical trades, 465
Australian industrial agreement, An, 111
Australian industrial organisation, 233
Australian trade, Japan and, 491
Austria, Electrical developments in, 240
Austria, Linking-up in Germany and, 231
Austria-Hungary, Aluminium in, 491
Austrian electricity supply, Legislation in, 290

AUTHORS—
Allcock, H., on Great Britain's interest in the metric system of weights and measures, 196
Andrews, L., on The overseas distribution of engineering appliances, 405
Arnold, A., on Steam condensation, 347
"Atlantic," on Some interesting facts relating to lamp renewals, 532
Baldwin, F. G. C., on Telephone exchange transfers and their organisation, 172
Barclay, S. F., on The mechanical design and specification of the turbo-alternator rotor, 295, 319, 357
Barham, G. Basil, on Industrial research, 93; on Electrical shoemaking, 219; on Lubrication and electrical plant, 509
Bennett, C. M., on The saving of fuel, 430; on Clinker dams, 507
Bonnett, L. B. & J. M. Drabelle, on An automatic hydro-electric plant, 598
Caldwell, Capt. James, on Notes on welding systems, 77, 117, 501
Cumberbatch, E. P., on Diathermy: The use of the electrical current to raise the temperature of the body in the treatment of disease, 381
Drabelle, J. M., & L. B. Bonnett, on An automatic hydro-electric plant, 598
"Ex-Shift Dog," on Reminiscences, 4, 27, 51
Garrard, C. C., on Switchgear standardisation, 197, 237, 335
Gillott, W. A., on Electrical cooking as applied to large kitchens, 93, 118, 479
Harding, L., on A curious case of wear by a lubricating ring, 148
Harrison, Lt.-Comdr. H. T., on Methods of directing and concentrating light, 223

AUTHORS—*continued*
Hedges, K., on Tubular earths for lightning conductors, 411
Hering, C., on A new principle in the flow of heat, 214
Hibbard, H. L., on The application of electricity to various auxiliaries on shipboard, 22
Hodgson, E. S., on Some considerations on the British electrical industry after the war, 28
Hunter, T. M., on Gas firing boilers, 28, 72, 95
Hutchison, D. M. W., on Cable fault localisation in practice, 52
"Imperial," on A British ideal for manufacturers, 508
"Imprimatur," on The promulgation of improvements in design and manufacture, 340
Jacobs, C. M., on Electrical signalling and control of railways, 69, 76, 359, 503
Jones, E., on High efficiency air pumps for high vacua, 21
Knox, Dr. R., on Single-impulse radiography (instantaneous), its limitations and possibilities, 382
Lackie, W. W., on The Dalmarnock power station, 223
"Legal Contributor," on The war and charges for electricity, 364
Maclean, Prof. Magnus, on Kelvin as a teacher, 167
McKinnon, E. C., on Large batteries for power purposes, 412, 436
Marchant, Prof. E. W., on Some transient phenomena in electrical supply systems, 525
Marshall, C. W., on A novel transformer analogy, 28; on Disabled soldiers as meter repairers in Glasgow Corporation electricity department, 429
Morgan, E. S., on Electrical developments in Italy, 220, 243, 267
Murgatroyd, F., on Iron commutators, 54
Newlands, A., on Waterpower in Great Britain, 125
"Power Station Engineer," on National electricity supply, 171, 213, 309, 317, 339
"Research," on Disabled soldiers and their employment, 532
Rice, E. W., Junr., on Railway electrification as a means of saving fuel, 358
Rothera, L., on Rolling mills and the electric drive, 165
"Rover," on Consumers' complaints, 147
Rymer-Jones, J., on On computing the speed of receiving a telegraphic message through submarine cables, 556
Savage, H., on The standard resistance and temperature coefficient of pure annealed copper, 486
Smith, P. H., on Two essential conditions for burning tar oil in Diesel engines, 575
Stansfield, J. J. H., on Income-tax: Wear and tear and obsolescence allowances, 436
Stanton, A. L., on Organised effort, 175

AUTHORS—*continued*
Stewart, A., on Overseas trade after the war, 390
Stubbings, G. W., on Some notes on coal testing, 5; on Temperature effects in D.C. meters, 195; on Instruments for central station switchboards, 573
Thornton, Prof., on Insulation under direct and alternating current, particularly as regards moisture, 262
Trotter, A. P., on Illuminating engineering, 8; on Nomenclature: Continuous current *versus* direct current and voltage *versus* pressure, 268
Turnbull, C., on A British electrical proving house, 453, 477, 487
"W. G. N.," on The selection of an electricity meter, 75
Wardle, P., on Joints on triple-concentric to three-core lead-covered cables, 389
Watson, S. J., Presidential address at the I.M.E.A. annual convention, 1918, 622
Wedmore, E. B., on The control of large amounts of power, 244, 285, 310, 334, 366, 454, 574
"Whistlefield," on Leaves from an engineer's log: 1, The munition workers, 219; 2, The trials of Sandy McNab, 261
"X," on Resistances for starters and controllers, 100

Automatic hydro-electric plant, An, by J. M. Drabelle & L. B. Bonnett, 598
Automatic telephone exchange, Leeds, 483
Automatically operated synchronising station, An, 279
Award, The 12½ per cent., 85, 183, 233, 423
Awards, Prize, 15
Awards, Wages, 256, 278
Aylesbury, Extensions at, 365

BALFOUR report on post-war trade policy, 387, 409

BANKRUPTCY PROCEEDINGS—
Birkett, W. D., 563
Connold, R. E., 491
Coster, S. S. & Co., 202
Damey, C., 394
Fahn, W. J. 36
Felgate, A. E., 227, 394, 589
Hipkins, G. E., 60, 179, 302
Mountain, M. B. (The Economy Appliances & Engineering Co.), 394
Ogilvie, C. B., 60
Smith, W. T., 60, 132, 179, 611
Storey, W., 227, 394, 589

Banks, After-war electrical trade and industrial, 273
Batteries for power purposes, Large, by E. C. McKinnon, 412, 436
Batteries from Norway, No dry, 302
Battery manufacture in Spain, 420

Battery v. magneto ignition in America, 263
Bauxite and aluminium industry, French, 58
Bavarian water powers, The utilisation of, 304
Benevolent Institution, The Electrical Trades—Annual meeting, 455
Benevolent Institution, Electrical Trades—The special appeal, 65, 255, 489
Birmingham manufacturers and the Whitley Report, 161, 592
Blackpool linking-up scheme, 377
Blade clearance in turbines, Observing, 440
Blast-furnace gas, Electrical cleaning of, 327
Board of Trade Electric Power Supply Committee's report, 518, 534, 606
Board of Trade Tramways Committee, The, 122, 162, 184, 209
Boilers, Gas firing, by T. M. Hunter, 29, 72, 95
Bonus, Building trades and the, 376
Bonus, Electrical workers', 41, 110
Bonuses and bacon, 376
Bonuses, Munition workers, 89
Brass industry, Syndication in the, 624
Brazil, 227
Brazil, Rubber stocks in, 251
Brazil, Trade statistics of, 490
Brighton Electricity Works award, 424
British Association meeting cancelled, 232, 470
British dye making industry, The development of the, 550
British Electrical and Allied Manufacturers' Association, annual meeting, 257, 287, 293
British Electrical and Allied Manufacturers' Association, List of new members, 207
British Electrical Engineers, 315
British Electrical Engineers (Electricity Supply Section), Association of, 327, 544, 567, 582, 606
British electrical industry after the war, Some considerations on the, by E. S. Hodgson, 28
British electrical proving house, A, by C. Turnbull, 453, 477, 487
British Engineers' Association, 233, 568
British engineering standards, Adoption abroad of, 404, 453
British ideal for manufacturers, A, by "Imperial," 508
British Industries Fair, 1918, 36, 232, 274
British manufacturers in Australia, 434, 455
British manufacturing in Australia, 579
British oil, 280
Building trades and the war bonus, 376

CABLE ducts, Cooling, 470
Cable fault localisation in practice, by D. M. W. Hutchison, 52
Cable laying, The Ministry of Munitions and restrictions on, 15, 233, 472
Cable, Relaying old, 326
Cable temperatures, 567
Cables, Computing the speed of receiving a telegraphic message through submarine, by J. Rymer-Jones, 556
Cables, Glover's detective and protective devices for, 604
Cables in Australia, Sale of electrical, 611
Cables, Increasing the carrying capacity of underground, 367
Cables, Joint boxes and terminals for split conductor, 3, 65
Cables, Joints on triple-concentric to three-core lead-covered cables, by P. Wardle, 389
California, Linking up in, 208
Callender's hospital and distress fund, 136
Calorised iron for thermo-couples, 184
Canada, Exports from, 538
Canada, Notes from, 392
Canada, Water-power development in, 399, 470
Canadian fuel situation, 592
Canal, A projected American ship, 399
Canals relieving railways of traffic, 356
Central station employés, Wages of, 14
Central stations, Lead and copper from enemy, 361
Centralisation of electric power, 207
Charges for electricity, The war and, by Legal Contributor, 364
Cheese-making in a power house, 495
Chester, Electro-culture at, 101
Chesterfield Electricity Works, Extensions at, 328, 511
Chicago, Electric truck service in, 263
Chicago, Electrical progress in, 326
Chile, 516
Chile, Electrical imports of, 251
China, Competition in electrical trade in, 610
China, Import trade of, 514
City & Guilds of London Institute, 112

CITY NOTES—
Adelaide Electric Supply Co., 91, 114, 428
Alderley & Wilmslow Electric Supply Co., 402
Allen (Edgar) & Co., 619

CITY NOTES—*continued.*
Altrincham Electric Supply Co., 427, 451
Aluminium Corporation, 596, 618
American Telephone & Telegraph Co., 355
Anderston Foundry Co., 524
Anglo-American Telegraph Co., 91, 380, 451
Anglo-Argentine Tramways Co., 571
Anglo-Portuguese Telephone Co., 476, 499, 522
Argentine Tramways & Power Co., 427
Auckland Electric Tramways, 428
Austrian companies, 498
Automatic Telephone Manufacturing Co., 283
Avery, W. & T., 620
Babcock & Wilcox, 474
Barcelona Traction, Light & Power Co., 595, 619
Bath Electric Tramways, 427
Blackpool & Fleetwood Tramroad Co., 188
Bombay Electric Supply & Tramways Co., 331, 571
Bournemouth & Poole Electricity Supply Co., 235, 259
Brazilian Traction, Light & Power Co., 571
Brisbane Electric Traction & Lighting Co., 499
Bristol Tramways & Carriage Co., 283
British Aluminium Co., 284, 307
British Coalite Co., 19, 427
British Columbia Electric Railway Co., 18, 67
British Electric Traction Co., 524, 596, 619
British Electric Transformer Co., 403, 426
British Engine, Boiler & Electrical Insurance Co., 380
British Ever-Ready Co., 451, 475
British Insulated & Helsby Cables, 187, 235, 283, 330, 475, 571
British L. M. Ericsson Manufacturing Co., 211, 282
British Trade Corporation, 115
British Westinghouse Electric and Manufacturing Co., 355, 427, 449
Bromley (Kent) Electric Light and Power Co., 331, 403
Brompton & Kensington Electric Supply Co., 284, 330
Brotherton Tubes & Conduits, 547
Browett Lindley & Co., 427
Brush Electrical Engineering Co., 523, 572, 619
Buenos Aires Port & City Tramways, 19
Burmah Electric Tramways & Lighting Co., 19
Calcutta Electric Supply Corporation, 140, 284, 331, 476, 499, 546, 595
Calcutta Tramways Co., 571, 619
Callender's Cable & Construction Co., 258
Cambridge Electric Supply Co., 187
Canadian General Electric Co., 258, 547
Central Electric Supply Co., 163
Central London Railway Co., 186, 211
Charing Cross, West End & City Electricity Supply Co., 258, 281, 354
Chelsea Electricity Supply Co., 331
Chile Telephone Co., 19
Chiswick Electricity Supply Corporation, 451
Chloride Electrical Storage Co., 476
City & South London Railway Co., 186
City of Buenos Aires Tramways Co. (1904), 115, 163, 427
City of London Electric Light Co., 211, 259, 330
Clarke, Chapman & Co., 331, 428, 620
Cleveland & Durham Electric Power Co., 331
Clyde Valley Electrical Power Co., 307
Colombo Electric Tramways & Lighting Co., 595
Compagnia de Electricidad de la Provincia de Buenos Aires, 332
Compagnie Generale d'Electricité, 115
Companies struck off the register, 19, 44, 92, 451, 523
Consolidated Electrical Co., 355
Cordoba Light, Power & Traction Co., 19
County of London Electric Supply Co., 67, 258
Coventry Chain Co., 19
Craigpark Electric Cable Co., 451, 476
Crompton & Co., 44, 331
Crossley Bros., 163, 234
Cuba Submarine Telegraph Co., 403
Davis & Timmins, 235, 281
Delhi Electric Tramways & Lighting Co., 571
Direct Spanish Telegraph Co., 258, 283
Direct United States Cable Co., 43, 379, 428
Doulton & Co., 547
Dublin & Lucan Electric Railway Co., 355
Dublin United Tramways (1896), 43, 139
East London Railway Co., 115
Eastern Extension, Australasia & China Telegraph Co., 282, 620

CITY NOTES—*continued.*
Eastern Telegraph Co., 282, 619
Edison Swan Electric Co., 67, 476
Electric Construction Co., 499, 522
Electrical & Industrial Investment Co., 235
Electrical Distribution of Yorkshire, 187
Electro-Bleach & By-Products, 187, 379, 403
Evered & Co., 428
Fellows Magneto Co., 596
File Tramway, Light & Power Co., 187, 211
Folkestone Electricity Supply Co., 355
Fraser & Chalmers, 283
French electrical companies, 18, 44, 115, 187, 466, 475, 547, 573
French Thomson-Houston Co., 475, 523
Gandy Belt Manufacturing Co., 91
General Electric Co., 67
General Electric Co. (U.S.A.), 522
German Electrical Companies, 43, 331, 402, 475, 523
German Lahmeyer Co., 283
Globe Telegraph & Trust Co., 187, 619
Glover, W. T., & Co., 259, 355
Great Northern Telegraph Co. (of Denmark), 475
Hadfields, 283
Hastings & District Electric Tramway, 307
Henley's Telegraph Works Co., W. T., 211, 307, 355, 401
Hill of Howth (Co. Dublin) Electric Tramway Co., 163
Hong Kong Tramway Co., 163
Humphrey Pump Co., 19
Imperial Tramways Co., 619
Indian Electric Supply & Traction Co., 499
Indo-European Telegraph Co., 379, 450
Industrial & General Trust, 546
Isle of Thanet Tramways & Lighting Co., 92, 428
Italy, 332
Johnson & Phillips, 379, 402, 427
Kalgoorlie Electric Power & Lighting Co., 139, 163, 571, 618
Kaministiquia Power Co., 44, 67
Keith (Jas.) & Blackman Co., 595
Kensington & Knightsbridge E. L. Co., 211, 259, 354
Kidderminster & District Electric Lighting & Traction Co., 499
La Plata Electric Tramways, 547
Lancashire Dynamo & Motor Co., 403
Lancashire United Tramways, 187
Launceston & District Electric Supply Co., 355
Lewes & District Electric Supply Co., 499
Lima Light, Power & Tramways Co., 44, 331
Liverpool Overhead Railway Co., 67, 187, 210
Llandudno & Colwyn Bay Electric Railway Co., 163, 187
Llanelly & District Electric Lighting and Traction Co., 187
London & Suburban Traction Co., 163, 522
London Electric Railway Co., 186
London Electric Supply Corporation, 234
London United Tramways, 283, 427
Lymington Electric Light & Power Co., 402
Mackay Companies, 307
Madras Electric Tramways (1904), 284, 403
Manila Electric Railroad & Lighting Corporation, 284
Mansfield & District Tramways, 211
Marconi International Marine Communication Co., 619
Marconi Wireless Co. of America, 380, 547
Marconi Wireless Telegraph Co., 91
Mather & Platt, 163, 187
Melbourne Electric Supply Co., 91, 113, 428
Melton Mowbray E. L. Co., 259
Mersey Power Co., 331
Mersey Railway Co., 187
Merthyr Electric Traction & Lighting Co., 499
Metropolitan Carriage, Wagon and Finance Co., 499
Metropolitan District Railway Co., 186, 211
Metropolitan Electric Supply Co., 234, 258
Metropolitan Electric Tramways, 427
Metropolitan Railway Co., 115, 140
Midland Electric Corporation for Power Distribution, 332
Minchead Electric Supply Co., 476
Mirrlees, Watson & Co., 307, 331, 524
Monte Video Telephone Co., 402, 427
Montreal Light, Heat & Power Consolidated Co., 620
Montreal Light, Heat & Power Co., 115, 451, 620
Nairobi Electric Power & Lighting Co., 476
National Boiler & General Insurance Co., 187
National Electric Supply Co., 187, 211
National Gas Engine Co., 140, 163
Neuhausen Aluminium Co., 283, 403
New General Traction Co., 571
Newcastle & District E. L. Co., 235, 283

CITY NOTES—*continued.*
Newcastle-upon-Tyne Electric Supply Co., 163, 259, 306
Newmarket Electric Light Co., 307
Nitrogen Products & Carbide Co., 451
North Metropolitan Electric Power Supply, 427
North of Scotland Electric Light and Power Co., 451
Northampton Electric Light & Power Co., 211, 259
Notting Hill E. L. Co., 235
Oldham, Ashton & Hyde Electric Tramways Co., 402
Oriental Telephone & Electric Co., 139, 596, 619
Oxford Electric Co., 235, 259
Para Electric Railways & Lighting Co., 235, 331, 402
Paris Supply Companies, 139
Peebles, Bruce, & Co., 235, 282
Peel-Conner Telephone Works, 547
Pernambuco Tramways & Power Co., 595
Potteries Electric Traction Co., 499
Prospectus—Tees Power Co., 283
Provincial Tramways Co., 524
Ramsgate & District Electric Supply Co., 211
Reddaway, F., & Co., 428
River Plate Electricity Co., 427, 451
Robey & Co., 284
Rushden & District Electric Supply Co., 211, 259
Ruston, Proctor & Co. and R. Hornsby & Sons—amalgamation, 563
St. James's & Pall Mall Electric Light Co., 141, 188, 210
Salisbury Electric Light & Supply Co., 331
Sao Paulo Tramway, Light & Power Co., 91
Scarborough Electric Supply Co., 284, 331
Shanghai Electric Construction Co., 499, 523, 546
Shropshire, Worcestershire & Staffordshire Electric Power Co., 499
Siemens & Schuckert Companies, 91
Siemens Bros. & Co., 570
Simplex Conduits, 523
Slough & Datchet Electric Supply Co., 283
Société Industrielle des Telephones, 18
Smithfield Markets Electric Supply Co., 187
South London Electric Supply Corporation, 163, 236, 282
South Metropolitan Electric Light and Power Co., 188, 235
South Metropolitan Electric Tramways and Lighting Co., 427
South Wales Electrical Power Distribution Co., 524, 594
Stewarts & Lloyds, 259, 331, 428
Stock Exchange Notices, 67, 115, 235, 619
Submarine Cables Trust, 571
Sunderland District Electric Tramways Co., 307
Swansea Improvements & Tramways Co., 595
Swedish Elektra Works, 475
Swedish Volta Co., The, 323
Telegraph Construction & Maintenance Co., 163, 211
Telephone Co. of Egypt, 571, 595
Traction & Power Securities Co., 187
Tramways, Light & Power Co., 211, 235
Trowbridge Electric Supply Co., 595
Tucuman Tramways, Light & Power Co., 307
Tyneside Electrical Development Co., 332
Tyneside Tramways & Tramroads Co., 211, 235
Underfeed Stoker Co., 44
Underground Electric Railways Co. of London, 235
United River Plate Telephone Co., 547, 571, 594
Urban Electric Supply Co., 426, 521
Venezuela Telephone & Electrical Appliances Co., 19
Vickers, 380, 403
Victoria Falls & Transvaal Power Co., 19, 619
Vulcan Boiler & General Insurance Co., 571
Waste Heat & Gas Electrical Generating Stations, 307, 331
Water Softeners, 43
Waygood-Otis Co., 595 619
Western Telegraph Co., 258, 547
Western Union Telegraph Co., 67, 475
West India & Panama Telegraph Co., 427, 499, 523
West India Electric Co., 403
West London & Provincial Electric Supply Co., 498
Westminster Electric Supply Corporation, 115, 187, 258
White, J. G., & Co., 595
Willans & Robinson, 355
Windermere & District Electric Supply Co., 283
Windsor Electrical Installation Co., 284
Wood & Cairns (Electrical Factors, Edinburgh), 284
Yorkshire Electric Power Co., 91, 139, 186
Yorkshire (West Riding) Electric Tramways Co., 19, 307
Yorkshire (Woollen District) Electric Tramways, 572

Clinker dams, by C. M. Bennett, 507
Clutch, A constant-torque magnetic, 94
Clyde engineers, 64
Coal and peat supplies for power, 359
Coal conservation, Electric power supply and, 110, 286, 431
Coal Conservation Sub-Committee, Interim report of the—National electricity supply, 17, 25, 45
Coal Conservation Sub-Committee's report, Various comments on the, 15
Coal control, 255
Coal, Dirt in, 592
Coal economies in Germany, 579
Coal in Algeria, 308
Coal mines regulations, New, 328
Coal, Powdered, 280, 370, 495
Coal, Preventable waste of, 391
Coal rations for industries, 593
Coal, Shortage of, 542
Coal shortage, The value of electric power in relieving, 260
Coal testing, Some notes on, by G. W. Stubbings, 5
Coke in the Metropolitan area, Supplies of gas, 41, 161
Combination rumours, 178
Commercial apprenticeships, 443
Commercial Bureau in London, French, 610
Commercial libraries, 36
Commissioners for the overseas markets, Expert, 202
Commonwealth Edison plant, Additions to the, 548
Commutators, Iron, by F. Murgatroyd, 54
Computing the speed of receiving a telegraphic message through submarine cables, by J. Rymer-Jones, 556
Conciliation and arbitration, 592
Condenser, A fifty thousand sq. ft., 503
Condensers for high-pressure service, Wet, 280
Conductor cables, Joint boxes and terminals for split, 3, 65
Conductors in Germany, Substitutes for overhead copper, 602
Conference of Metropolitan authorities owning electricity undertakings, 279
Conference in India, Electrical, 351, 551
Constantinople tramway and electricity undertakings, 592
Consumers' complaints, by "Rover," 147
Contracts, Australian, 515

CONTRACTS CLOSED—
Australia, 14, 85, 325, 469, 591
Barnes, 14, 493
Barnsley, 181
Belfast, 469
Bexhill-on-Sea, 135
Bolton, 39, 159, 469
Bradford, 14, 159, 254, 374, 469
Brighton, 14
Cavan, 325
Colchester, 566
Derby, 14, 135, 254, 325
Eastbourne, 35, 85
Gillingham, 566
Glasgow, 39, 85, 181, 230, 325, 374, 517, 566
Government contracts, 85, 109, 206, 230, 277, 396, 493, 614
Hackney, 39
Hammersmith, 63, 234, 254, 542
Hereford, 135
Hull, 14, 614
Ilford, 14, 230, 423
India, 614
Ipswich, 615
Kettering, 469
Lancaster, 14
Leeds, 39, 109
London, 39, 63, 85, 135, 181, 230, 254, 397, 542
London County Council, 85, 135, 397
Luton, 397
Maidstone, 566
Manchester, 447
Melbourne, 14, 85, 325
Metropolitan Asylums Board, 181
New Zealand, 63, 206
Newport (Mon.), 254
Perth (W.A.), 325
Poplar, 85, 591
Salford, 39, 63, 230, 542
Sheffield, 39, 254, 351, 447, 566
South Africa, 542
Southend, 304
Southwark, 230
Spain, 85, 423, 447
Stepney, 63, 304, 591
Stoke-on-Trent, 254
Swansea, 135, 254
Sydney, 14, 325, 469
Tasmania, 14
Walsall, 63
Walthamstow, 230
Watford, 39
West Ham, 109
Willesden, 85
Winchester, 374
Wolverhampton, 63, 159, 254, 351, 469, 566
York, 542

Contracts, Manufacturers and pre-war, 193

CONTRACTS OPEN—
Aberdare, 181, 206, 230, 254, 277, 303
Aberdeen, 277, 303, 325
CONTRACTS OPEN—*continued*
Adelaide, 62, 85, 109, 134, 159
Argentine, 13, 38, 62
Ashton-under-Lyme, 517
Australia, 38, 62, 85, 109, 134, 159, 181, 230, 254, 277, 303, 325, 351, 374, 396, 423, 447, 469, 493, 541
Belfast, 109, 159, 181, 206, 230, 493, 517, 541
Bolton, 13, 38, 230, 254
Brisbane, 423, 447, 469, 493
Cavan, 159, 181, 206, 614
Croydon, 135, 159
Darlington, 254, 277, 303
Dublin, 159, 206, 230, 351, 374, 614
Eastbourne, 254, 277
Edinburgh, 277, 303
Erith, 469, 493, 517
Fleetwood, 206, 230
Fulham, 591, 614
Glasgow, 423, 517
Halifax, 277
Hoylake & West Kirby, 423, 447
Islington, 374, 396, 423, 447, 469, 493
Keighley, 14, 206
Lancaster, 230, 254, 541, 565, 591
Leith, 423
London, 135, 159, 230, 374, 396, 423, 447, 469, 493, 541, 565, 591, 614
London County Council, 135, 159, 565
Macclesfield, 181, 206, 230, 254
Malvern, 351
Manchester, 14, 39, 62, 85, 109, 135, 181, 206, 230, 254, 279, 303, 469, 493, 591
Melbourne, 38, 62, 85, 109, 159, 181, 230, 277, 303, 325, 351, 374, 396, 423, 447, 469, 493, 541
Middleton, 303
Morecambe, 591, 614
Newcastle-under-Lyme, 493, 517, 541
Newport (Mon.), 109, 135, 159, 374, 396
New Zealand, 614
Office of Works, H.M., 159, 206, 230, 423, 447
Plymouth, 351, 374, 396
Portsmouth, 181, 206, 230
Redditch, 396, 423, 447
St. Pancras, 541
Salford, 135
South Africa, 517
Spain, 39, 62, 230, 325, 396, 423, 541, 565
Spenborough, 303, 325, 565
Stockton-on-Tees, 230
Tipperary, 14, 39
Warrington, 85, 135, 159, 181, 423, 447, 469, 517, 541, 565

Contracts, Revision of charges under existing, 182
Control after the war, 2
Control of large amounts of power, The, by E. B. Wedmore, 244, 285, 310, 334, 366, 454, 574
Control on railways, Electric signalling and, by C. M. Jacobs, 69, 76, 359, 503
Controllers, Resistances for starters and, by "X," 100
Cookery, Economical, 241
Cooking as applied to large kitchens, Electrical, by W. A. Gillott, 93, 118, 479
Cooking at a newspaper office, Electric, 294
Cooking, Electrical, 257
Co-operation for after-war export trade, 190
Co-operation, Gas and electric, 162
Copper, American price for, 516
Copper conductors in Germany, A substitute for overhead, 602
Copper for electric wire in Sweden, 305
Copper from enemy central stations, Lead and, 361
Copper, The alleged discovery of a substitute for, 88
Copper, The electrolytic refinement of, 88
Copper, The standard resistance and temperature coefficient of pure, annealed, by H. Savage, 486

CORRESPONDENCE—
Association of British Electrical Engineers, by "Doubtful," 393; by E. R. Pausey, 417, 441; by G. C. Law, 417; by G. P. Sutton, hon. sec., E.P.E.A., Midland Section, 623
Award and clerical staffs, The 12½ per cent., by "Chief Clerk," 152; by "Another Chief Clerk," 176; by "Diversity Factor," 200; by "Inquirer," 200; by the Assist. Gen. Secretary, National Union of Clerks, 224; by "Technical Clerk," 441; by B. Griffiths, Welsh Organiser, National Union of Clerks, 463
Battery rule, Prof. Walker's, by W. F. Dunton, 81, 111
Billingsgate and decimal coinage, by "Decimal," 559
Bonus, The 12½ per cent. by T. W. Cole, 81
Braided cables, Distinctive colours for, by W. T. Henley's Telegraph Works Co., 24; by "T.," 33; by H. Pain, 55
British ideal for manufacturers, by "Briton," 559
CORRESPONDENCE—*continued*
British water power, by "Kiwi," 176
Cable breakdowns, by D. M. W. Hutchison, 82; by C. Beaver, 130
Chief engineers and their remuneration, by Duncan Watson, 101
C.T.A.A. and the E.P.E.A., by the Chairman, C.T.A.A., 301; by the Hon. Sec., C.T.A.A., 343
Coal economy and national health, by C. O. Bastian, 586
Coal consumption in large generating stations, by A. S. L. Barnes, 585
Coil *v.* magneto ignition, by E. G. Ford, 273; by "Unsettled," 322; by J. R. Parkinson, 416
Communications with aircraft, by Graham & Latham, 102
Comparative costs of steam and electric drive, by Tom Hood, 248
Competition, A question of, by the Secretary, Electrical Contractors' Association, 616
Conversion of a continuous system to three-phase, by "Transformer," 102
Depreciation, by "Subscribers," 152
Dust coal, by "Chile," 23
Economy of large steam turbines, by A. H. Law, 440
Electrical Power Engineers' Association and the Association of British Electrical Engineers, by E. B. Pausey, 417, 441; by G. C. Law, 417, 560
Electric power supply in Great Britain, by F. W. Purse, 199
Electric propulsion of ships, by S. S. Cook, 559; by W. P. Durtnall, 586
Examinations in "Electrical Installation Work," by A. P. Lundburg & Sons, 129; by W. Ellerd-Styles, 152; by K. Warner, 176
Faults, by F. C. Raphael, 102
Foreign languages and trade, by H. Allcock, 493
Future of small-station managers, The, by W. J. U. Sowter, 538
German influence in the Swiss electrical industry, by G. Wuthrich, 130
Government lighting restrictions and saving coal, by F. W. Willcox, 559
Heating long tubes electrically, by E. Scott Rivett, 248
Illuminating engineering, by S. O. Cook, 33, 81; by A. P. Trotter, 55
Industrial combination, by H. F. Smith, 511
I.E.E. and the proposed A.B.E.E., by R. C. Atkinson, S. Simpson, R. D. Spurr, G. Morgan, A. R. Chator and P. Furness, 585; by T. Mason, 623
Joints on triple-concentric to three-core lead-covered cables, by P. H. Williams, 416; by F. D. Balshaw, 416; by P. Wardle, 463
Labour and bulk supply, by Secretary, Electrical Trades Union, London Station Engineers, No. 1 Branch, 586
Meters on a changed frequency, by "Query," 33, 82, 110; by "T," 55
National electricity supply, by S. L. Pearce, 301
News from Ruhleben, by W. E. Swale, 224
Nomenclature, by J. B. Clarke, 301
Office organisation in municipal electricity undertakings, by "An Engineer-in-Charge," 225
Openings for trade in Palestine, by A. P. Holloway, 224
Organisation of electric supply officials, by "G.," 200; by "Organiser," 224; by Hon. Sec., Chief Commercial Officers' Association (Electrical Supply Undertakings), 248
Patent licences and European reconstruction, by "Monitor," 558
Production of ductile tungsten, by Speechly, Mumford & Craig, 33; by J. Gray, 82
Prof. Perry's (?) Harmonic Analysis, by W. F. Dunton, 301
Proposed Institution of Electrical Station Engineers, by "A. M. P. A.," 33
Question of competition, by Watson, Marsh & Co. (Brondesbury), 511; by E. A. Pinto, 558
Rarer key minerals, The, by S. J. Johnstone, 16
Rawson, F. L., Re. Mr., by St. Helens Cable & Rubber Co., 24, 160
Report on post-war trade, by E. Berkeley, 463
Resistance temperature coefficient of copper, by H. Savage, 511
Restrictions on the use of lead-covered cable, by the Secretary, Cable Makers' Association, 359; by the Secretary of the I.M.E.A., 472
Rotary problem, A, by "R.," 248
Switchboard passageways and "high visibility," by C. Cuthbertson, 177
Telephone calls, by A. Lawton, 624
Trade in Canada, by G. F. Sills, 440
CORRESPONDENCE—*continued*.
Tubular earths for lightning conductors, by "Mains Supt.," 441
Wages in central station service, by "En Avant," 81

Corrosion of turbine blades, 376
Cui Bono? 555
Customers and population, 111

DALMARNOCK power station, The, by W. W. Lackie, 223
Dams, Clinker, by C. M. Bennett, 507
Daylight saving all the year round, 242
Decimal and metric systems, The, 397
Decimal coinage, 328, 377, 398, 470, 519, 543, 560
Demobilisation problems, 208, 313
Depreciation and obsolescence, Machinery, 178, 375
Design and manufacture, The promulgation of improvements in, by "Imprimatur," 340
Design and specification of the turbo-alternator rotor, The mechanical, by S. F. Barclay, 295, 319, 357
Diamonds, The formation of, 351
Diathermy: The use of the electrical current to raise the temperature of the body in the treatment of disease, by E. P. Cumberbatch, 381
Dielectric tests, 356
Diesel engines and tar oil, 477
Diesel engines, The lubrication of air compressors and, 32
Diesel engines, Two essential conditions for burning tar oil in, by P. H. Smith, 575
Dinner to Mr. A. H. Seabrook, Valedictory, 452
Dirt in coal, 592
Disabled men, Employment for, 531
Disabled men, Training, 135, 424, 471, 566, 593
Disabled soldiers and their employment, by "Research," 532
Disabled soldiers as meter repairers in Glasgow Corporation electricity department, by C. W. Marshall, 429
Dissolutions, 36, 203, 348, 444, 466
Distribution of engineering appliances, The overseas, by L. Andrews, 405
Dublin and district and linking-up, 161
Dublin electricians' wages, 326
Dutch East Indian market, 155
Dye making industry, The development of the British, 550

EARTHS for lightning conductors, Tubular, by K. Hedges, 411
Economic policy, 493
Economic problems, 49
Economy, Electric lorries and petrol, 88
Edison Battery Co. (U.S.A.), The, 60
Education Bill, The, 471
Education, Science and, 374
Educational, 16, 136, 183, 255
Electric appliances in U.S.A., Large increase in use of, 206
Electric cabs at the Hague, 542
Electric furnace progress, 243, 327, 470, 566
Electric industrial trucks, 40
Electric locomotives, Notes on, 291
Electric lorries and petrol economy, 88, 207
Electric parcel van, London and North-Western Railway, 600
Electric passenger locomotives, New, 597
Electric ploughing, 128, 150
Electric steel furnace, A large American, 184
Electric vehicle attachment, An, 543
Electric vehicle progress, 328, 613
Electric Vehicle Committee, The work of the, 270, 518
Electric vehicle costs, Municipal, 137
Electric vehicles, Long-lived, 110
Electric vehicles, "Self-delivery" of, 593
Electrical appliances in the U.S.A., Domestic, 136
Electrical cleaning of blast-furnace gas, 327
Electrical Contractors' Association, 447
Electrical conventions, 577
Electrical cooking, 257
Electrical developments in Austria, 240
Electrical developments in Italy, by E. S. Morgan, 220, 243, 267
Electrical developments in Sweden, 155
Electrical firms and the Royal Arms, 36
Electrical manufacturing in Australia, 71
Electrical plant, Lubrication and, by G. B. Barham, 509
Electrical resistivities of iron alloys, 40
Electrical supplies for South Africa, 589
Electrical theory of matter, 255
Electrical trades after the war, The report of the departmental committee, 578, 581, 606
Electrical Trades Benevolent Association—The special appeal, 65, 255, 280
Electrical Trades Union, 518
Electrical workers' bonus, 41
Electrically-driven cement works, 34
Electricity direct from coal gas, 144
Electricity, Economise gas and, 231

Electricity for wounded soldiers, 494
Electricity in domestic service, 568
Electricity in ship propulsion, 435
Electricity, Restrictions in the use of gas and, 493
Electricity supply and reconstruction, National Coal Conservation Sub-committee's report, 17, 25, 45
Electricity supply, National, 256, 266, 398; by "A Power Station Engineer," 171, 213, 309, 317, 339
Electricity, The future of gas and, 593
Electricity, The war and charges for, by Legal Contributor, 364
Electricity to various auxiliaries on shipboard, The application of, by H. L. Hubbard, 22
Electricity undertakings, Conference of Metropolitan authorities owning, 279
Electrification, A steel works, 603
Electrification as a means of saving fuel, Railway, by E. W. Rice, Junr., 358
Electrification of railways, 110, 338
Electrification progress in Scandinavia, 463
Electro-chemistry in South Africa, 28
Electro-culture at Chester, 101
Electro-culture at Warrington, 192
Electro-culture Committee, Board of Agriculture, 182
Electro-culture, The new, 208, 232
Electro-Harmonic Society, 14, 137
Electrolytic pickling of steel, 104
Electrolytic recovery of tin, 470, 617
Electrolytic refinement of copper, 88
Electro-magnetic clutch, 94
Electro-metallurgy in France, 164, 520
Electro-metallurgy in Sweden, 471
Electro-plating steel springs, 308
Electro-therapy, 485
Employers and Employed, The National Alliance of, 162
Employers' Parliamentary Council and the Trade Boards Bill, The, 542
Employment in the iron and steel trades, 109
Engine foundations, Breaking up, 88
Engineer officers, Training of, 481
Engineering appliances, The overseas distribution of, by L. Andrews, 405
Engineering Council, An, 255
Engineering Council, U.S., 390
Engineering industries, New, 337
Engineering progress in England, 471
Engineering standards, Adoption abroad of British, 404
Engineering trade overseas, 385
Engineering trades after the war, The, 593
Engineering training in Australia, 256
Engineering wages, 616
Engineers, Association of Electric Power, 137, 146, 152, 160, 182, 256, 278, 326, 377, 448, 470, 544, 568, 584, 593, 615
Engineers and the secret character note, 566
Engineers, British electrical, 315
Engineers' club for the Midlands, Proposed, 520
Engineers, Clyde, 64
Engineers' congress at Paris, Civil, 520
Engineers—Electricity Supply Section, Association of British Electrical, 327, 544, 567, 582, 606
Engineer's log, Leaves from, by "Whistlefield," (1) The volunteer munition worker, 219; (2) The trials of Sandy McNab, 261
Engineers, Salaries of tramway managers and electrical, 377
Engineers' salaries, Supply, 304
Exhibition of women's work, 495
Export trade combinations, 482
Export trade, Co-operative effort for, 131
Export trade after the war, Co-operation for, 190
Export trade expansion scheme, 531
Exports and imports of electrical goods during October, November and December, 1917, 117; January, February and March, 1918, 501
Exports from Canada, 538
Exports of electrical goods, American, 298

FAIR, 1918, British Industries, 36, 232, 274
Farnday House scholarships, 398
Faraday Society, The, 9, 104, 270, 549
Fatalities, 65, 89, 110, 207, 305, 327, 352, 375, 398, 470, 494, 543, 593
Féry primary cell, 111
Fire alarm circuits, 558
Fires, 155, 203
Fish feeding by electric light, 424
Fixation of atmospheric nitrogen, The 352
Foreign and colonial tariffs on electrical goods, 96, 384, 432, 528
Foreign manufactures, Samples of, 231
Foreign trade, 63, 182, 278, 398, 495, 591
Foreign Trade Department, 538
Foremen Engineers, London Association of, 519
Foundations, Breaking up engine, 88
France, 82
France, Electro-metallurgy in, 164, 520
France, Lamp manufacturing in, 371
France, The electrical regeneration of, 242
Francis turbine, A large high-speed, 358
French commercial bureau in London, 610
French Thomson-Houston developments, 107
Fuel and Light Order, New, 616
Fuel economy, 135, 279, 448
Fuel economy by saving electricity, 376, 567
Fuel economy in Germany, 112
Fuel economy, Rations and, 314
Fuel for motors, A new, 256
Fuel oil, Production of home, 352
Fuel rations, Combined, 543
Fuel saving, 291
Fuel situation, Canadian, 592
Fuel, The saving of, by C. M. Bennett, 430
Furnace, A large American electric steel, 184
Furnace for melting ferro-manganese, Electric, 116
Furnace progress, Electric, 233, 327, 470, 566

"G" IN engineering and physical work, The value of, 494
Gas and electric co-operation, 162
Gas and electricity, Economise, 231
Gas and electricity, Restriction in the use of, 493
Gas and Electricity, The future of, 593
Gas coke as fuel, The use of, 328
Gas engines in a colliery power station 568
Gas firing boilers, by T. M. Hunter, 29, 72, 95
Gas, Raising the price of, 16
Gauges, Screw, 136
Generating systems, Output of large American, 471
Generation and distribution, German proposals for State, 24
Generators, Asynchronous, 362
Generators, Operating temperatures in large A.C., 488
German aeroplanes, Electrical equipment of, 542
German electrical syndicate, A general, 323
German influence in the Swiss electrical industry, 99
German lightning conductor makers, 538
German penetration in Switzerland, 147
Germany and Austria, Linking-up in, 231
Germany, Coal economies in, 579
Germany, Electric motors in, 26
Germany, Fuel economy in, 112
Germany, Substitutes for overhead copper conductors in, 602
Germany, The strikes in, 112
Glasgow Corporation electricity department, Disabled soldiers as meter repairers in, by C. W. Marshall, 429
Glasgow, Dick Kerr turbine contract for, 274
Glover's detective and protective devices for cables, 604
Great Britain, Water power in, by A. Newlands, 125
Greaves-Etchells furnace, 82
Gun again, The electric, 305, 328

HAGUE, Electric cabs at the, 542
Hastings linking-up scheme, 448
Heat, A new principle in the flow of, by C. Hering, 214
Heating of moulds, Electric, 518
Hull station engineers and the A.E.S.E., 161
Hull Technical College, 542
Hydro-electric development in Spain, The need for, 533
Hydro-electric plant, An automatic, by J. M. Drabelle & L. B. Bonnett, 598
Hydro-electric power and university instruction, 207

IGNITION and lighting materials for American military motor wagons, 371
Illuminating engineering, by A. P. Trotter, 8
Illumination, Safety first and, 398
Imperial wireless chain, The, 265
Import trade of Australia, 86
Import trade of China, 514
Imports and exports of electrical goods during October, November and December, 1917, 117; January, February, and March, 1918, 501
Imports of Chile, Electrical, 251
Income-tax, Industry and, 563
Income-tax: Wear and tear and obsolescence allowances, by J. J. H. Stansfield, 436
Incorporated Municipal Electrical Association and the report on national electricity supply, The, 327
Incorporated Municipal Electrical Association—Annual convention, 621; Presidential address by S. J. Watson, 622; Discussion on electric power supply, 622
Incorporated Municipal Electrical Association, Manchester meeting, 208, 518, 602
India, Electrical conference in, 351, 551
India, Japanese electrical machinery and fittings in, 611
India? Manufacture of electric lamps in, 610
Induction, Unipolar, 351
Inductive interference with telegraph and telephone lines, 280
Industrial agreement, An Australian, 111
Industrial banks, After-war electrical trade and, 273
Industrial combination, 169
Industrial committees, 527
Industrial Council, Municipal, 20
Industrial Councils at Birmingham, 592
Industrial councils, Tramway workers and, 536
Industrial management, 182
Industrial organisation, Australian, 232
Industrial problems, 554
Industrial reconstruction, 170
Industrial Reconstruction Council, 110, 231, 279, 376, 593, 615
Industrial research and the National Physical Laboratory, 231
Industrial trucks, Electric, 40
Industries after the war, New electrical, 181
Industries, Coal rations for, 593
Industries, New engineering, 337
Industries, Report on the protection of essential, 464
Industries, The wire drawing, 362
Industry after the war, Some considerations on the British electrical, by E. S. Hodgson, 28
Industry and income-tax, 563
Industry at Wolverhampton, Electrical, 589
Industry, Electric power supply and after-war, 392
Industry, German influence in the Swiss electrical, 99
Industry in the U.S.A., The electrical, 261
Industry, Mr. Dudley Docker and the electrical, 551
Industry, Problems of, 105, 124, 148, 195
Industry, Self-government for after-war, 615
Industry, The British magneto, 580
Inland transport, 110
Inquiries, 89, 112, 160, 181, 207, 256, 398
Inquiries, Trade, 466, 515

INSTITUTION AND LECTURE NOTES—
Allen West Engineering Society, 112, 207
Association of Consulting Engineers, 207
Association of Engineering and Shipbuilding Draughtsmen, 112, 207
Association of Mining Electrical Engineers, 16, 64, 135, 207, 305, 329, 448
Birmingham and District Electric Club, 64, 375
Bradford Engineering Society, 135
British Engineers' Association, 279
Chadwick Public Lecturgs, Swansea, 232
Chief Technical Assistants' Association, 232, 278, 398, 424, 543
City and Guilds Institute, 548
Diesel Engine Users' Association, 89, 183, 398, 519
Electrical Association of Australia (Victorian Section), 16
Greenock Electrical Society, 329
Illuminating Engineering Society, 161, 543
Institute of Metals, 89, 207, 305, 616
Institution of Civil Engineers, 16, 64, 448
Institution of Electrical Engineers, 89, 183, 256, 305, 329, 398, 424, 473, 496, 519; Birmingham Local Section, 161; Newcastle Local Section, 398, 449, 496; Yorkshire Local Section, 161; Scottish Local Section, 183, 329, 375; Western Local Section, 256
Institution of Engineers and Shipbuilders in Scotland, 398, 424
Institution of Gas Engineers, 496
Institution of Mechanical Engineers, 207
Institution of Municipal Engineers, 593
Irish Association of Electrical Station Engineers, 329
Junior Institution of Engineers, 183, 448, 567
Keighley Association of Engineers, 615
Liverpool Engineering Society, 89, 398, 424
Manchester Association of Engineers, 112
Manchester Steam Users' Association, 567
Physical Society, 183
Röntgen Society, 16, 256
Royal Institution, 135, 305
Royal Marine Engineers, 448
Royal Society of Arts, 256
Société Internationale des Electriciens, 424
Society of Engineers, 183, 567
South African Institution of Engineers, 16
Tramways and Light Railways Association, 616

Institution of Electrical Engineers, 511
Institution of Electrical Engineers and foreign trade, The, 338
Institution of Electrical Engineers and the medical profession, The, 381
Institution of Electrical Engineers—Annual Meeting, 531, 549
Institution of Electrical Engineers—dining arrangements, 68
Institution of Electrical Engineers wiring rules, 352, 495
Institution proceedings, 289
Instruments for central station switchboards, by G. W. Stubbings, 573
Insulating material from fish offal, 552
Insulating materials investigation, Composite, 518
Insulation under direct and alternating current, particularly as regards moisture, by Prof. Thornton, 202
Insulators in guys, The proper installation of strain, 375
Insurance (Unemployed) Acts, 1911-1916, National—Decisions by the Umpire, 64, 207
Iron alloys, Electrical resistivities of, 40
Iron and steel trade policy, 589
Iron and steel trades, Employment in the, 109
Ironclad-switch department at Witton, The new, 311
Iron commutators, by F. Murgatroyd, 54
Italian market, Advice respecting the, 250
Italy, 35, 202, 516
Italy, Electrical developments in, by E. S. Morgan, 220, 243, 267
Italy, Electric welding in, 394

JAPAN and Australian trade, 491
Japanese electrical machinery and fittings in India, 611
Japan's electrical industry, 142
Johannesburg, Electricians' licences in, 216
Joint boxes and terminals for split conductor cables, 3, 65

KELVIN as a teacher, by Prof. M. Maclean, 167
Kinemas, Government propaganda by travelling, 123
Kitchen, Poplar communal, 344
Kitchens, Electric cooking as applied to large, by W. A. Gillott, 93, 118, 479
Kitchens, National, 352
Kitchens, Travelling tramcars for municipal, 111

LAMP bulb composition, Effect of the war on, 566
Lamp manufacturing in France, 371
Lamp renewals, Some interesting facts relating to, by "Atlantic," 532
Lamps, Electric pocket, 216
Lamps in India? Manufacture of electric, 610
Lamps, Miners' safety, 274
Lamps, "Overshooting" with tungsten, 480
Lamps, The case for 110-volt, 136
Language and business, 63
Languages and trade, Foreign, 458
Lead and copper from enemy central stations, 361
Lead-covered cables, Joints on triple-concentric to three-core, by P. Wardle, 389
Lead, United States, 348
Leaves from an engineer's log, by "Whistlefield": (1) The munition worker, 219; (2) The trials of Sandy McNab, 261
Leeds, Automatic telephone exchange, 483

LEGAL—
Aldworth v. Smith, 155
A. E. G. Companies to be wound up, 515
Assault on a non-union man, 441, 519
Author fined, 568
Baldock, F. D., v. City of Westminster Council and the Charing Cross, West End & City Electricity Co., Ltd.—Claim for damages, 79, 226
Bennett v. Edey, 272
B. T. H. Co. v. Duram, 106, 143, 272
Cable detention, Alleged electric, 177, 201
Calderwood v. Coniston Electrolytic Copper Works and Douvreleur, 393
Calmont, King & Co. v. Brain, 441
Capital reduction, 419
Charge of stealing brass fittings, 83
Clones Light & Power Co. v. Commissioners of Valuation, 81
Colliery manager fined, 537
Cotton spinning patent, Dr. Ferranti's, 352, 397
County of London Electric Supply Co. v. James, 345
Dirty work, 323
Discipline at an electricity works, 368
Electric fittings landlords' fixtures, 537

LEGAL—*continued*
Electric furnace patents, 305
Electrical engineer fined, 59, 490
Electrical firm fined, 59
Engineer sentenced, An, 111
Factory Acts prosecutions, 20, 441
Farley and Others v. Truscott, 537
Forbes v. M. & B. Kinemas, 537
German agents for ferro-tungsten, 321
Great Eastern Railway v. Postmaster-General, 321, 442
Hammond Bros. v. Champness, 201
Harris v. Hinds, 609
Harrison v. Morris, 249
Hemming v. London Electric Railway Co., 441
Hegan & Wardrop v. R. Offer and Sons, 345
Hume v. Ferranti, 609
Kensington & Knightsbridge Electric Light Co. v. Notting Hill Electric Lighting Co., 10, 79
Lamp stealing, Electric, 110
Liability for tramway passengers' luggage, 143
Lighting regulations, Breach of, 473
Littleborough U.D.C. v. Victoria Dyeing, &c., Co., 155
Marconi's Imperial Wireless Chain Litigation, 249, 271
Mitchell v. Radio-electric Lamp Co., 368
Osram Lamp Litigation, 249, 273, 441
Pirtsch's Electric Manufacturing Co., 321
Rose Bros. v. Morchen, 368
Standard Cable Manufacturing Co., 368
Stevens v. Telegraph Construction and Maintenance Co., 515
Sulley v. Withers, 177, 273
Tampering with electricity supply wires, 490
Thomson & Son (Motor Factors, Ltd.) v. Tarrant & Co., 226
Tynemouth Electric Traction Co., Action against, 59
Unfenced machinery, 611
Use of petrol, 567
Using current during prohibited hours, 393
Was the liquidator liable?, 616
White and Others v. The Mayor and Corporation of Dover, 418
Whittaker v. Accrington & District Gas & Water Board and G. Cunliffe & Sons, 227
Why Brown transgressed, 495
Wireless spark gap for curing shell shock, 418
Workman's false time sheet, 249
Workmen's compensation, 161, 322, 419, 536

Legislation in Austria, Electricity supply, 290
Libraries, Commercial, 36
Lichnowsky's disclosures, Prince, 374
Light detector for the blind, A, 184
Light, Methods of directing and concentrating, by Lieut.-Comdr. H. T. Harrison, 222
Light, The red, 109
Lighting and starting sets for motor cars, Electric, 183
Lighting material for American military motor wagons, Ignition and, 371

LIGHTING NOTES—
Aberystwyth, 37, 203, 274, 371, 589
Accrington, 60, 132, 491
Aldeburgh, 539
Alton, 11
Altrincham, 539
Ammanford, 274
Ardee (Co. Louth), 274
Argentina, 444
Arklow, 516
Armagh, 348, 420
Ashton-under-Lyne, 60
Australia, 11, 60, 107, 132, 228, 251, 348, 371, 420, 491, 563, 611
Austria-Hungary, 467, 612
Aylesbury, 11, 302, 349
Bacup, 107, 156, 323
Ballymoney, 60
Ballyshannon, 11
Bantry, 274
Barnes, 60, 203, 395, 611
Barnsley, 179, 589
Barrow, 132, 228, 323
Bath, 179
Batley, 516, 563
Bedford, 37, 156
Bedworth, 179, 274
Belfast, 12, 156, 179, 228, 274, 349, 394, 444
Bexhill, 421, 466, 611
Birkenhead, 228, 275
Birmingham, 37, 83, 179, 228, 251, 394, 466, 539, 589
Blackburn, 37, 156, 539
Blackpool, 37, 83, 179, 203, 275, 323, 444, 539
Blackrock, 37
Bolton, 444
Bonnybridge, 251
Bootle, 157, 251, 394
Bournemouth, 228
Bradford, 37, 107, 132, 157, 251, 349, 372
Bradford-on-Avon, 60
Braintree, 12, 251, 421
Branstone, 12
Bray (Wicklow), 179

LIGHTING NOTES—*continued*.
Bridlington, 302, 349
Brierfield, 589
Brighouse, 302, 466
Brighton, 203, 228
Bristol, 372
Burley-in-Wharfedale, 69
Burnham (Somerset), 83
Burnley, 107, 563
Burton-on-Trent, 589
Bury, 157, 203, 323, 516, 611
Bury St. Edmunds, 394, 491
Buxton, 179
Caerphilly, 516
Callan (Co. Kilkenny), 83
Canada, 132, 252, 349, 539, 563
Carlisle, 252
Carshalton, 563
Cavan, 12
Chelsea, 613
Cheltenham, 60
Chile, 539
China, 302, 466
Clayton, 37, 252, 302
Cleckheaton, 589
Clyde District, 37, 323
Coatbridge, 539
Colchester, 180, 539, 563, 589
Continental, 37, 60, 83, 107, 132, 157, 180, 228, 252, 275, 323, 349, 372, 394, 421, 467, 491, 539, 563, 589 611
Cork, 275, 467
Coventry, 203
Crewe, 590
Cromer, 60
Crompton, 394
Dartford, 275, 349
Darwen, 132, 228, 372, 467
Denmark, 467, 589
Derby, 132, 323, 349, 491
Dewsbury, 372, 590
Devizes, 180
Doncaster, 37, 157, 252
Dorking, 12
Dover, 275
Dublin, 37, 83, 132, 157, 180, 228, 323, 421, 516, 539, 563, 590
Dudley, 12, 132, 157
Dulverton, 37
Dundalk, 180, 228, 275, 372, 612
Dundee, 180, 228, 612
Ealing, 180, 372
East Africa, 467
East Ham, 421
Eastbourne, 157
Ebbw Vale, 275, 612
Edinburgh, 132, 275, 421, 491
Electricity supply charges, 612
Elland, 37, 157, 564
Erith, 157
Eton, 564
Exeter, 132, 252
Falkirk, 203
Farnworth, 157, 203
Faversham, 539, 590
Fife, 590
Fleetwood, 491
Fochabers, 180
France, 107, 132, 228, 394, 421, 611
Frinton-on-Sea, 302
Fuel economy, 394
Fulham, 83, 204
Gainsborough, 12, 132
Galway, 492
Garforth, 157
Germany, 132, 275
Gillingham (Kent), 37, 275, 323
Glasgow, 107, 203, 421, 467, 539
Gloucestershire Electric Power Co.'s Bill, 180
Grantham, 12
Greaseborough, 180, 324
Great Harwood, 612
Greenock, 12, 372
Grimsby, 492
Hackney, 37, 157, 204, 395
Halifax, 12, 37, 324, 539
Hammersmith, 60, 157, 252, 445, 539
Hampstead, 12, 302
Harrogate,, 60, 492, 590
Haslingden, 12, 324
Hebden Bridge, 12, 539
Hereford, 180, 275
Heston and Isleworth, 516
High Wycombe, 12, 108
Hitchin, 228
Hornsey, 421, 612
Horsham, 133
Hove, 180
Huddersfield, 203, 275, 302, 324, 492
Hull, 12, 157, 302, 349, 492, 612
Hungary, 372
Iceland, 394
Ilford, 421
India, 228, 372, 395, 444
Ipswich, 612
Irlam, 157
Islington, 133
Italy, 107, 157, 252, 275, 349
Keighley, 516
Kettering, 467, 590
Kilmarnock, 180, 421
King's Lynn, 180
Kingston-on-Thames, 12, 133
Lambeth, 467, 492
Lanark, 539
Lancashire electricity suppliers and coal, 37
Lancashire linking-up schemes, 349
Lancaster, 133
Leeds, 12, 37, 444, 612
Leeds (near Oldham), 395
Leek, 12, 539
Leith, 252
Lewes, 60, 564
Leyton, 12
Limavady, 372, 467, 564
Limerick, 180
Lincoln, 564

LIGHTING NOTES—*continued*.
Linking-up schemes, 204
Liverpool, 133, 157, 228
Llandudno, 12, 612
London, 12, 37, 60, 83, 133, 157, 180, 204, 228, 252, 302, 349, 372, 395, 445, 467, 492, 516, 539, 564, 613
London County Council, 83, 133, 228, 349, 395, 445, 467
Londonderry, 158, 180, 228
Lourenco Marques, 276
Lydney, 133
Lye, 276
Lymington, 444
Lynton, 445
Maidenhead, 467
Maidstone, 324, 564
Manchester, 37, 61, 180, 228, 252, 302, 324, 421, 516
Mansfield, 324
Market Drayton, 61
Marsden, 37
Marylebone, 60, 372
Middleton, 37
Midlothian, 180
Monasterevan, 37, 83
Montrose, 180
Morecambe, 12, 158, 252
Morpeth, 372
Morley, 564
Morocco, 349
Musselburgh, 492
Mytholmroyd, 83, 395
Nelson, 37, 421, 467, 492, 613
Newcastle-on-Tyne, 61, 158, 372,, 421
Newcastle-under-Lyme, 349, 372, 445, 564
Newport (I. of W.), 492
Newport (Mon.), 12, 108
Newquay, 276
New Ross (Co. Wexford), 564
New Zealand, 12, 61, 108, 252, 467
Normanton, 108
Northampton, 12
Norway, 372, 467, 539, 563
Norwich, 12
Nottingham, 61, 158, 540, 564
Nuneaton, 516, 540
Oakengates, 303
Oldham, 252
Ormskirk, 276, 395
Oxford, 303
Pembroke (Co. Dublin), 252, 395
Pontypool, 349
Pontypridd, 613
Poplar, 613
Portrush, 61
Portstewart, 158
Potteries, 228
Power Bills, 204, 229, 252, 324, 564, 613
Radcliffe, 108
Ramsgate, 564
Rathmines, 445, 540
Rawdon, 61
Rawtenstall, 84, 422, 492
Redruth, 324
Rochdale, 38, 204, 349, 395, 422, 445
Rotherham, 84, 324, 445
Runcorn, 180
Russia, 37, 612
St. Annes-on-Sea, 61, 133
St. Pancras, 83, 302, 395, 516
Salford, 38, 61, 133, 158, 229, 252, 276, 349, 564
Selby, 540
Shanklin, 395
Sheffield, 38, 158, 253, 372, 467
Shipley, 564
Shipston-on-Stour, 229
Shoreditch, 180
Shropshire Power Co.'s Bill, 158, 395, 421
Silsden, 38
Skelton and Brotton, 158
Staithwaite, 468, 590
Sleaford, 590
Slough, 564
South Africa, 133, 180, 276, 467, 492, 516, 540
South Crosland, 61
Southport, 276, 324
South Shields, 158, 276
South Wales, 613
Southwark, 61, 133, 467
Spain, 37, 180, 491, 539, 563, 590, 612
Spenborough, 61, 204, 492
Stafford, 38, 492
Stalybridge, 12, 540
Stamford, 276, 468
Stepney, 61, 157, 204, 302
Stockport, 13
Stockton-on-Tees, 108
Stoke-on-Trent, 133, 253, 303, 324
Stoke Newington, 180
Stourbridge, 564
Stourport, 61
Stroud, 84
Sunderland, 372, 564, 590
Swanage, 303
Swansea, 38, 61, 253, 395, 445
Sweden, 157, 180, 228, 323, 467, 539, 590, 612
Swindon, 468
Swinton and Pendlebury, 204
Tasmania, 108, 133, 253, 324, 349, 654, 611
Tavistock, 445
Tetbury, 133
Todmorden, 133, 229, 324, 540
Tonbridge, 613
Torquay, 133, 253, 564
Tottenham, 180
Turkey, 83, 539
Twickenham, 395
Tynemouth, 204
United States, 13, 108, 133, 180, 372, 468
Uruguay, 349

LIGHTING NOTES—*continued*.
Wakefield, 180, 468
Wallasey, 133
Walsall, 61, 590
Warminster, 62, 180
Warrington, 590
Waterford, 62
Watford, 62, 158
Wednesbury, 349
Welsh water powers, 468
West Bromwich, 133
West Hartlepool, 62
Weston-super-Mare, 38
Weymouth, 62, 180, 613
Whitehaven, 276
Whittlesea,
Wigan, 84, 158, 253, 350, 564
Willesden, 84, 350
Wolverhampton, 158, 253, 564
Woolwich, 157
Worcester, 38, 84, 253, 350, 516, 564
Workington, 253
Wormit, 158
Worthing, 158, 565
Yeadon, 38
Yeovil, 540
York, 253, 350
Yorkshire Electric Power Co.'s Bill, 84, 108, 133, 158, 373
Yorks (West Riding), 38, 62

Lighting sets for U.S.A. farm use, Standard electric, 136
Lighting specifications, Street, 257
Lightning, Attracted the, 518
Lightning conductor makers, German, 538
Lightning conductors, Tubular earths for, by K. Hedges, 411
Lightning stroke, A, 161
Linking-up, Dublic and district and, 161
Linking-up in California, 208
Linking-up in Germany and Austria, 231
Linking-up in the United States, 374
Linking-up scheme, Blackpool, 377
Linking-up, South Wales and Monmouthshire, 543, 562
Linking-up, West of Scotland, 16, 47, 56

LIQUIDATIONS—
A. E. G. Co., 611
Armorduct Manufacturing Co., 60
Australian Thermit, 466
Automatic Electric Block Signalling Co., 466
Auxiliary Electrical Co., 107, 491
Balcke & Co., 156, 178
Bosch Magneto Co., 322, 515
Brimsdown Lamp Works, 466
British Adding Machine Co., 491
British Autogenous Welding Co., 132
British Huhn Metallic Packing Co., 251
Brown & Co., 203
Calmon Asbestos & Rubber Works, 420, 466
Calvert's Circulation Fuel Economiser,, 371, 466
Carbonoid, 394
Climax Stopper & Ebonite, 60
Edison Manufacturing Co., 36
Electric Lighting & Engineering Co., 394
Electric Utility Co., 348
"Electrician" Printing & Publishing Co., 491
Electricity Supply Co. for Spain, 371, 444
Electrolytic Alkali Co., 444
Elieson Electric Traction Co., 491
Galway & Salthill Tramways Co., 302
Grondal Kjellin Co., 444
J. T. Pickering Hoist & Engineering Co., 611
Malta Tramways Co., 515, 589
McPhail & Simpson, 83
Monometer Manufacturing Co., 274 302
Morris & Lister (London), 107
Pintsch's Electric Manufacturing Co., 466
Prentice Wireless Train Control, 420
Resisto Electrical Manufacturing Co., 11
R. E. T. Copstruction Co., 563
Rotherham Electrical Engineering Co., 60, 107, 203, 227
Rural Districts Electrical Undertakings, 156
Scorch Electrical Co., 563
Southport Tramways Co., 515
Standard Cable Manufacturing Co., 348
Tackley, W. C., & Co., 36
Technical Engineering Co., 611
Theerman, W. P., & Co., 515
Turner & Burger, 60
United Carborundum & Electrite Works, 227
Vaughan Engineering Works, 178, 227
Watson's Water Softeners, 420

Lochaber Water Power Bill, 423
Locomotives, New electric passenger, 597
Locomotives, Notes on electric, 291
London & North Western Railway electric parcel van, 600
London County Council employés, 207
Long-span construction, Overcoming the difficulties of, 506
Lubricating ring, A curious case of wear by a, by L. Harding, 148

Lubrication and electrical plant, by G. B. Barham, 509
Lubrication of air compressors and Diesel engines, The, 32
Ljungstrom turbine electric ship propulsion, 459

MACHINERY depreciation and obsolescence, 375
Magnesium in the U.S.A., 376
Magnetic clutch, A constant-torque, 94
Magnetism, Terrestrial, 568
Magneto ignition in America, Battery v., 263
Magneto industry, The, 306
Magneto manufacture in Sweden, 341
Magnetos, Ignition, 227
Manchester Electricity Works and the 12½ per cent. bonus, 351
Manchester meeting of the I.M.E.A., 208, 518, 602
Manganese dioxide, 183
Magneto industry, The British, 580
Manufacture, The promulgation of improvements in design and, by "Imprimatur," 340
Manufacturers, A British ideal for, by "Imperial," 508
Manufacturers and pre-war contracts, 193
Manufacturers in Australia, British, 435, 455
Manufacturers, National Union of, 156
Manufacturers prepare for the reconstruction period, 433
Manufacturing in Australia, British, 579
Marconi case, The, 279, 304
Metal commandeering in the States, 473
Metal Industry Act, The Non-ferrous, 255, 538, 587
Meter repairers in Glasgow Corporation electricity department, Disabled soldiers as, by C. W. Marshall, 429
Meter, The selection of an electricity, by "G. G. N.," 75
Meters, Temperature effects in D.C., by G. W. Stubbings, 195
Metric system in the U.S.A., 464
Metric system of weights and measures, Great Britain's interest in the, by H. Allcock, 196
Metric system, The, 397, 410, 448, 471
Metric system, Using the, 161
Metropolitan munitions, 495
Mexican ores, 519
Mexico, Conditions in, 111
Midland Railway electrics, 141
Mineral output of Great Britain, Notes on the, 300
Mines, The use of electricity and electrical accidents in, 333
Mobilisation and demobilisation, Problems of, 313
Molybdenite in Ontario, 261
Monmouthshire, Linking up South Wales and, 562
Morocco, Patents in, 156
Motor, A new type of enclosed, 31
Motor-bicycle, A Norwegian electric, 510
Motor-cars, Electric lighting and engine starting sets for, 183
Motor shafts, Standardisation of, 454
Motor wagons, Ignition and lighting material for American, 371
Motormen, Medals for, 88
Motors, A new fuel for, 256
Motors in Germany, Electric, 26
Municipal Electrical Association, Incorporated, Annual convention, 621; Presidential address by S. J. Watson, 621; Discussion on electric power supply, 622
Municipal Electrical Association meeting, The Incorporated, 602
Municipal Electrical Association, Incorporated—Manchester meeting, 208, 518, 602
Munition workers' bonuses, 89
Munition workers' health, 496

NATIONAL electricity scheme, Coal conservation and the, 110
National electricity supply, 256, 266 398, 529
National electricity supply, by "A Power Station Engineer," 171, 213 309, 317, 339
National electricity supply—Interim report of the Coal Conservation Subcommittee, 1, 7, 25, 45
National electricity supply: Report of the Board of Trade Committee, 518, 534
National electricity supply, The I.M.E.A. and the report on, 327
National Insurance (Unemployment Acts, 1911 to 1916)—Decisions by the Umpire, 64, 207
National Kitchens, 352
National proving house, A, 457
National Union of Manufacturers (Incorporated), 156
Niagara power commandeered, 208
Nitrogen from the air, 208

NEW COMPANIES—
Accumulators (Birmingham), 138
Adams Bros. (Longton), 90
Alloy Welding Process, 474
Amalgamated Tanneries, 43
Associated Brass & Copper Manufacturers of Great Britain, 474

NEW COMPANIES—*continued.*
Basche, Sadler & Co., 90
Basford Engineering Co., 401
Batteries, 474
Berry's Electric, 18
Blackhall Engineering Co., 138
Boving Engineering Works, 281
Brimirgton Electric Supply Co., 90
Bristol Institute of Electro-therapeutics, 234
British Engineering Co. (London), 569
British Engineering Standards Association, 521
British Expert Engineers & Precision Tool Manufacturers, 18
Calgray & Co., 281
Cass's Motor Mart, 138
Cooling Equipment, 498
Crypto Electrical Co., 498
Davies, H., & Co., 379
E. S. G. & Co., 185
East Somerset Agricultural Power Co., 569
Edinburgh Electrical Engineering Co., 569
Electric Deposits, 281
Electrical Components, 474
Electrical Supplies (Liverpool), 162
Electro-Leather Industries, 498
Fortiuminium, 138
Fricker's Metal Co., 281
Gorey Gas, Water & Electric Supply Co., 379
Harlow Remedies, 90
Helix Heater Co., 234
Hightensite, 618
Magneto Spare Part Co., 521
Medical Supply Association, 185
Metallic Electrical Engineering Co., 185
Metallic Electrodes, 118
Metallurgists, 546
Mica & Micanite Supplies, 138
Monometer Manufacturing Co., 546
Motive Power Improvement Co., 281
Multiple Fusers, 90
Nicholson Bros., 90
Northumbria Motors, 18
Nott, J. H., & Sons, 474
Oldham Rubber Mills, 210
Omegar Lampworks, 331
Parkinson Motors, 474
Pebco Accumulators, 113
Phœnix Armature Works, 474
Pratt Bros., Edinburgh, 569
Pyne, Hughman & Co., 18
Quain Electric Co., 474
Sentinel Wagon Works, 498
Smith, Thos., & Sons (Rodley), 618
Spencer, J. E. & S., 474
Sykes-Morris Submarine Acoustics, 379
Tampico Electric Light & Power and Traction, 474
Taranto Tramways & Electric Supply Co., 618
Tees Power Station Co., 185
Telephone Third Hand, 570
Trafford Power & Light Supply, 618
Tubes (Equipment), 162
Wakefield, C. C., & Co., 113
Waste Utilisation, 546
Watertight Fittings, 18
White Electrical Instrument Co., 185
Wicks & Dale, 401
Wigan Electro-Metallurgical Works, 474
Zwicky Patents Syndicate (1917), 43

NEW ELECTRICAL DEVICES, FITTINGS AND PLANT—
Aeroplane lighting sets, 392
Alloy, A new electrical, 215
Armature, A method of banding an, 23
Automatic control for high-rated electric furnaces, 462
Bijur electric engine starter with automatic engaging gear, 439
Bolt switch, A new, 320
B.T.H. circuit breakers, Automatic, 58
B.T.H. current-limit reactances, 345
B.T.H. induction motors, 23, 462
B.T.H. ironclad oil-break switchgear, 215
Bulkhead fitting, A new, 103
Carbon terminal, A new, 345
Carron cookers at the Engineers' Club, 295
Contactor, Tramway relay operated, 103
Discharge curves of "Bul" cells, 367
Dust, Electrical precipitation of, 143
Electric immersion water heater, 561
Elevator for shells, Automatic, 153
E.M.C. fans, 367
Fractionating hydrocarbons, 143
Furnaces, Automatic electric shell-heating, 103
Gaiffe influence machine, 247
Grinder, Portable electric, 294
Heating long tubes, Electrically, 143
Heating pad, 293
Hollow flue damper, A new, 560
Industrial truck, B.E.V., 191
Iron, An automatic electric, 294
Ironclad cubicle switchboard, 462
Lamp-locking device, A, 104
Lauraine high-tension magneto, 417
Magnifying scale deflections, 345
Motor converter, A large, 247
Motors, Three-phase live-roll, 57
Oil switch, New automatic, 320
Portable electric kitchen for army use, 418
Reinforced non-ferrous metals (Denny's process), 391

NEW ELECTRICAL DEVICES, FITTINGS AND PLANT—*continued.*
Simplex patent salt detector, 608
Sound signals, Receiver for submarine, 143
Sub-station transformers, Outdoor, 295
Switchgear, Three-phase 6,000-ampere, 561
Temperature conversion table, 402
Terminal box, An improved type of outdoor, 190
Terminal box, Vertical, 153
Tramcar cooking apparatus, Electric, 440
Tricity kitchen at United Newspapers, 294
Truck type switchboards, 560
Westinghouse lighting dynamo for U.S. military motor wagons, 439
Wild-Barfield electric muffle, 608
Wild-Barfield furnace for A.C. working, 215
Wilkins truck unloading gear, 215
Wire, Tools for splicing, 216

New Zealand, Electric steel in, 54
New Zealand water power reports, 70
Niagara to aid civilisation, Mobilising, 375
Nickel alloys, 420
Nickel-copper steel, 447
Nomenclature—Continuous current, v. direct current and voltage v. pressure, by A. P. Trotter, 269
Non-ferrous metals licences, 255, 538, 587
Northampton Polytechnic Institute, 112
Norway, Accumulator manufacture in, 323
Norway, No dry batteries from, 302
Norwegian electric motor bicycle, A, 510
Notes from Canada, 392
Notes from Spain, 40, 137, 164, 591, 615

OBITUARY—
Barry, Sir J. Wolfe, 90, 113
Bissnger, H., 546
Blackwell, R. W., 330, 353, 400
Boddy, T., 594
Bottomley, J., 618
Brodie, J. S., 354
Carter, G. H., 281
Clarke, W. H., 138
Garnett, C. S., 473, 497
Garside, J. W., 400
Geale, E. C., 594
Gillott, W. F., 90
Greaves, E. N., 233
Hewitt, J. M., 209
Higham, T. H., 234
Hornsby, R. W., 258
Howard, C. C., 473
Hughes, W., 497
Huribatt, Lieut.-Col., 400
Lindley, Sir W. H., 17
Micklewright, F. G., 618
Newton, E. W., 17
Padley, Mrs. A. H. E., 546
Powell, C. S., 473
Puluj, Prof. J., 400
Rendel, Sir A. M., 113
Richards, J. B., 521
Rook, J. W., 426, 449
Sayers, R. M., 17
Sellon, J. S., 90
Sheehan, T. J., 378
Siemens, A. E. von, 426
Stansfield, 330
Streatfield, F. W., 330
Tweedie, G., 497
Williamson, G. H., 330

Obsolescence allowances, Income-tax: Wear and tear and, by J. J. H. Stansfield, 436
Obsolescence, Machinery depreciation and, 375

OFFICIAL RETURNS—
Acousticons, 474
Aldeburgh Electric Supply Co., 281
Alderley & Wilmslow Electric Supply, 618
Allen, West & Co., 90, 281, 330
Alliance Electrical Stores, 281
Aluminium Corporation, 330, 474
Amazon Telegraph Co., 138
Baker, F. E., 618
Banbury & District Electric Supply Co., 163
Barbadoes Electric Supply Corporation, 379
Bastian Electric Co., 138, 163, 186, 234
Bastian Meter Co., 498
Baxendale Bros., 474
Birmingham District Power & Traction Co., 138
Blackburn, Sterling & Co., 18
Blackpool, St. Annes & Lytham Tramways Co., 138
Blackwell, R. W., & Co., 138
Bogota Telephone Co., 43
Boothroyd, H. T., 18
Bowran, R., & Co., 474
Brazil, Straker & Co., 379, 474
Brecknell, Munro & Rogers, 18, 43, 234
Bridge, D., & Co., 281
Brilliant Arc Lamp & Engineering Co., 113, 474

OFFICIAL RETURNS—*continued.*
British Battery Co., 281
British Electric Traction Co., 18
British Electrolytic Zinc Co. (Isherwood Process), 186, 281
British Insulated & Helsby Cables, 618
British L. M. Ericsson Manufacturing Co., 474
British Mica Co., 379
Bromley (Kent) Electric Light and Power Co., 618
Bullers, 138
Burgess Hill & District Electric Supply Co., 474
Burmah Electric Tramways & Lighting Co., 138
Caerphilly Electric Supply Co., 138
Cambridge Scientific Instruments Co., 43
Central Electric Supply Co., 330
Chamberlain & Hookham, 18
Chilean Electric Tramways & Light Co., 138
Christy Bros. & Co., 43
Church Stretton Electric Supply Co., 570
City of Buenos Aires Tramways Co., 379
City of Freetown (Sierra Leone) Electricity Co., 186
City of London Electric Lighting Co., 498
City of Oxford Electric Tramways, 43
Coatbridge & Airdrie Electric Supply Co., 90
Coniston & District Electric Supply Co., 330
Consolidated Signal Co., 186
Costa Rica Electric Light & Traction Co., 186
County of Durham Electrical Power Distribution Co., 474
Crompton & Co., 521
Cross & Cross, 498
Cutting Bros., 281
Dartmoor Electric Supply, 18
Dove, W. E., & Co., 379
Drake & Gorham, 18
Duncan Stewart & Co., 401
E.S. Co., 521
East India Tramways Co., 210
Egham & Staines Electricity Co., 330
Electric Train-lighting Syndicate, 379
Electrical Contracts & Maintenance Co., 186, 210
Electrical Distribution of Yorkshire, 379
Eileson Electric Traction Co., 138
Ely Valley Lighting Co., 18
Enfield Electric Cable Co., 18
English Electrical Co., 498
Evans, O'Donnell & Co., 401
Ferranti, 210
Fisher, Humphries & Co., 379
Folkestone Electricity Supply Co., 498
Foster Construction Co., 91
Frinton-on-Sea & District Electric Light & Power Co., 18
Gloucestershire Electric Power Syndicate, 618
Gosport & Alverstoke Electric Lighting Co., 210
Guildford Electricity Supply Co., 18
Halifax & Bermudas Cable Co., 91
Hampson Bros., 234
Harper & Co., 379
Harrow Electric Light & Power Co., 186, 379
Hill Bros (Magnetos), 474
Hong-Kong Tramway Co., 43
Howard Asphalte Troughing Co., 401
Imperial United Lamp Co., 210, 281
Insulated Cap & Rivet Co., 43
Isle of Thanet Electric Tramways and Lighting Co., 281
Jarrow & District Electric Traction Co., 43
Jennings, F. A., 570
Kalgoorlie Electric Power & Lighting Corporation, 91
Keith (Jas.) & Blackman Co., 618
Keynsham Electric Light & Power Co., 210
Kingolite, 521
Laing, Wharton, 91
Lancashire United Tramways, 401
Larne Electric Light Works, 618
Lea Recorder Co., 163
Leon Cornelis, 113
Lithanode, 570
London United Tramways, 281
Magnesium Metal Co., 521
Manchester Fibrine Co., 570
Manganese Bronze & Brass Co., 474
Maxim Lamp Works, 379, 474
Mica & Micanite Supplies, 474
Musselburgh & District Electric Light and Traction Co., 91
Nairobi Electric Power & Lighting Co., 43, 91
New St. Helens & District Tramways, 18
Newcastle-upon-Tyne Electric Supply Co., 379
Perfect Burglar Alarm Co., 91
Pirelli, 18
Rapid Distillation & Power Co., 18
Record Electrical Co., 618
Reform Lighting Corporation, 521
Rhondda Tramways Co., 43
Rushmore, 18
Saunders, J. B. & Co., 91
Sheerness & District Electric Power and Traction Co., 163
Siemens Bros. & Co., 113
Siemens Bros. Dynamo Works, 210
Stothert & Pitt, 91

OFFICIAL RETURNS—*continued*
Tees Power Station Co., 570
Thermo-Electric Ore Reduction Corporation, 570
Vernon-Ward, A. (Hove), 210, 330, 474
Vernon-Ward, A. (Manchester), 186, 234
Worthington Pump and Machinery Corporation, 474
Wright & Wood, 330
Yorkshire Cable Co., 18
Yorkshire Electric Wiring & Motor Co., 570

Oil, British, 289, 447
Oil experiments, Fuel, 256
Oil from coal, 616
Oilfield development, Electricity in, 543
Ontario, Electrical goods for use in, 206
Organ in Westminster Abbey, Electric, 616
Organisation development, Trade, 351
Organised effort, by A. L. Stanton, 175
Overseas distribution of engineering appliances, The, by L. Andrews, 409
Overseas engineering trade, 385
Overseas markets, Expert commissioners for the, 202
Overseas Trade Advisory Committee, 393
Overseas trade after the war, by A. Stewart, 390
Overseas trade of the future, 218, 257
Overseas trade, Our policy on, 387
Overwork and under-production, 482

PAPER, Waste of, 375, 443
Paris, Civil Engineers' Congress at, 520
Patent applications, 203, 323, 455, 465, 589
Patent Bill, The new, 217
Patent restorations, 611
Patent revoked, 563
Patent specification amendment, 589
Patents, 563
Patents and alien enemies, 352, 394, 471, 589, 617
Patents and trademarks, 305
Patents in Morocco, 156
Patents, New, and published specifications, 24, 48, 72, 96, 120, 144, 168, 192, 216, 240, 264, 288, 312, 336, 360, 384, 408, 432, 456, 480, 504, 528, 552, 576, 600, 624
Peak load, Keeping down the, 137
Peat supplies for power, Coal and, 359
Pentane lamp, Corrections for the, 116
Periscope in the power house, The, 593
Petrol, Synthetic, 527
Phenomena in electrical supply systems, Some transient, by Prof. E. W. Marchant, 525
Phototelegraphy, 616
Plant growth under artificial light, 470
Platinum from Russia, 593
Ploughing, Electric, 128, 150
Poplar communal kitchen, 344
Portsmouth Dockyard school, 111
Power house, The periscope in the, 593
Power, Coal and peat supplies for, 359
Power Engineers, Association of Electrical, 89, 137, 146, 152, 160, 182, 256, 278, 326, 377, 448, 470, 544, 568, 584, 593, 615
Power Engineers' Association, Electrical, and the Association of British Electrical Engineers (Electricity Supply Section), 519, 555
Power in relieving coal shortage, The value of electric, 260
Power plant farthest north, 240
Power purposes, Large batteries for, by E. C. McKinnon, 412, 436
Power supply and after-war industry, Electric, 326, 392
Power supply and coal conservation, Electric, 286
Power supply at the I.M.E.A., 1918, Discussion on, 622
Power supply, Electric, 178, 447, 458, 616
Power supply, Electric—Report of the Board of Trade Committee, 518, 534, 606
Power supply in Scotland, Electric, 397
Power, The control of large amounts of, by E. B. Wedmore, 244, 285, 310, 334, 366, 454
Precipitation of solids, Electric, 185, 617
Press, The President and the, 505
Prices, Application to the Board of Trade for increase in maximum, 231
Prisoners of war, Electrical men and, 472
Problems of industry, 105, 124, 148, 195
Production data in wartime, 553
Professional Workers Union, A, 518
Progress in the U.S.A., The year's, 239
Protection in Sweden and England, 323
Provincial Electric Supply Committee, 425
Proving house, A British electrical, by C. Turnbull, 453, 477, 487
Proving house, A national, 457

RADIO instruments and measurements, 593
Radiography (instantaneous), its limitations and possibilities, Single impulse, by R. Knox, 382
Railway electrification as a means of saving fuel, by E. W. Rice, Junr., 358

RAILWAY NOTES—
Australia, 108, 373
Canada, 62, 108, 445
Edgware & Hampstead Railway, 492
France, 540
Germany, 422
Hutton Magna, 229
Italy, 276, 517
Japan, 468
Lancashire & Yorkshire Railway, 325
London Electric Railways, 205, 469
London tube railway breakdowns, 205, 468
Manchuria, 373
Mexico, 517
North London Railway Co., 541
Post Office Railway, 159
Railway workers' wages, 277, 303
South Africa, 38
Spain, 373
Switzerland, 181, 276
Tube train fire, 229
United States, 134, 350
Waterloo & City Railway, 517

Railway electrics, Midland, 141
Railway results, Electric, 194
Railway work, Useless, 185
Railways and welfare work, London underground, 472
Railways, Electric signalling and control on, by C. M. Jacobs, 69, 76, 359, 503
Railways, Electrification of, 110, 338
Rations and fuel economy, 314
Reactors, Taking proper care of, 599
Reconstruction Council, Industrial, 110, 170, 231, 279, 376, 442, 593, 615
Reconstruction, National Electricity Supply and Coal Conservation Sub-Committee's report, 1, 7, 25, 45
Reconstruction period, Manufacturers prepare for the, 433
Reconstruction, Strength through unity during, 146
Reconstruction—The world that is to be, 97
Reconstruction, Whitley, 434
Regeneration of France, The electrical, 242
Reminiscences, by "Ex Shift Dog," 4, 27, 51
Remuneration of professional men in Australia, 111
Report of the Board of Trade Committee on Trading with the Enemy, 513
Report on electrical trades after the war, 578, 581, 606
Report on post-war trade, The, 409
Report on the protection of essential industries, 464
Research and the National Physical Laboratory, 231
Research, Industrial, by G. B. Barham, 93
Research for the Navy, 168
Research, Prize for paper on the Co-ordination of, 615
Resistance and temperature coefficient of pure annealed copper, The standard, by H. Savage, 486
Resistance, Method of testing earth, 398
Resistances for starters and controllers, by "X," 100

REVIEWS—
Alternating-current Electricity and its Applications to Industry, by W. H. Timbie and H. H. Higbie, 378
Aluminium: Facts and Figures, by the British Aluminium Co., 274
British Engineers' Association: Directory of Members, 36
Continuous-current Motors and Control Apparatus, by W. P. Maycock, 378
Decimal Money Tables, by A. M. Pooley, 491
Dictionary of Aircraft, by W. E. Dommett, 444
Electrical Engineers' Diary, 1918, The, 36
Electrical Equipment, by H. W. Brown, 209
Elements of Electrical Engineering, by W. S. Franklin, 120
Engineers' Year Book for 1918, by H. R. Kempe, 420
Glover's Vade Mecum, by W. T. Glover & Co., 227
Industrial Engineering: Present Position and Post-war Outlook, by F. W. Lanchester, 444
Machine Shop Electricity, Hand Book of, by C. E. Clewell, 191
Manual of Reinforced Concrete, by C. F. March, 191
Mechanical Handling of Material, by G. F. Zimmer, 300
Metric Weights and Measures and British Equivalents, by A. J. Lawson, 466
Miniature Electric Light, by B. E. Jones, 119
Power Wiring Diagrams, by A. T. Dover, 210
Practical Electric Illumination, by T. Croft, 379

REVIEWS—*continued*
Practical Electrician's Pocket Book, 1918, 156
Short Logarithmic and Other Tables, by W. C. Unwin, 444
Steam Turbines, by J. A. Moyer, 299
Tait's Electrical Directory of Australia, 1918, 563
Telegraph Practice, by J. Lee, 300
Theory and Calculation of Electrical Apparatus, by Dr. C. P. Steinmetz, 497
Theory and Operation of Direct-current Machinery, by C. M. Jansky, 498
Theory of the Submarine Telegraph and Telephone Cable, by H. W. Malcolm, 119
The Great Debenture, or the Passing of National Unrest, by C. Walton, 202
What Industry Owes to Chemical Science, by F. Butler-Jones, 444
Workman's Time and Balance Book, by W. F. Chalker, 563

Revision of charges under existing contracts, 182
Rivetless ship a possibility, A, 566
Road transport, Cheap, 543
Roll of Honour, 17, 42, 66, 90, 113, 138, 162, 185, 209, 233, 258, 281, 306, 329, 353, 378, 400, 425, 449, 473, 497, 521, 545, 569, 594, 617
Rolling mills and the electric drive, by L. Rothera, 165
Rontgen Society, The, 48, 168, 264
Rosin oil, 130
Rotor, The mechanical design and specification of the turbo-alternator, by S. F. Barclay, 295, 319, 357
Royal visits, 495, 538
Rubber gloves, High-pressure test upon, 305
Rubber gloves, Protected, 85
Rubber stocks in Brazil, 251
Russia, Platinum from, 593
Russian electrical regulations, 48
Russian electricity works statistics for 1914, 189
Russian water-power legislation, 184
Rust, Protecting castings against, 495

SAFETY First, 207
Safety first and illumination, 398
Safety first in industrial work, 262, 495, 520, 592
Safety lamps, Miners', 274
Samples of foreign manufactures, 231
Sandberg treatment of tramway rails, The, 316
Scandinavia, Electrification progress in, 463
Science and education, 374
Science Museum, Re-opening of the, 16
Science, The neglect of, 255
Scientific Congress, 448
Scientific Products Exhibition, British, 424, 543
Scotland, Electric power supply in, 397
Scotland, Linking-up in, 16, 47, 56
Scottish Municipal Electrical Association, 89, 374
Seabrook, Mr. A. H., Valedictory dinner to, 452
Selenium cell as a burglar alarm, The, 30
Self-government for after-war industry, 615
Ship proposal, Novel electric, 135
Ship propulsion by the Ljungström turbine, Electric, 457
Shipboard, The application of electricity to various auxiliaries on, by H. L. Hibbard, 22
Ships, The electric propulsion of, 435, 455
Ships, Electric welding in the building of, 472
Shoemaking, Electrical, by G. Basil Barham, 219
Shop stewards in engineering works, 231
Siam, Trade statistics of, 370
Siberia, Electrical trade with, 39
Siemens Bros. & Co., Reconstitution, 16, 88, 447
Signalling and control on railways, Electric, by C. M. Jacobs, 69, 76, 359, 503
Sound-range telephones, 617
Sounders on firm alarm circuits, A.C., 558
South Africa, Electrical supplies for, 131, 589
South Africa, Electrochemistry in, 28
South African mines, 538
South Wales, Linking-up in, 543, 562
Spain, 420
Spain, Babcock & Wilcox in, 257
Spain, Battery manufacture in, 420
Spain, Notes from, 40, 137, 164, 591, 615
Spain, The need for hydro-electric development in, 533
Speed of receiving a telegraphic message through submarine cables, Computing the, by J. Rymer Jones, 556
Standardisation, 495
Standardisation, After-the-war trade and, 160
Standardisation of motor shafts, 454
Standardisation of tramway overhead construction, 14
Standardisation, Switchgear, by C. C. Garrard, 197, 237, 335
Standards in Australia, Electrical, 149
Starters and controllers, Resistances for, by "X," 100
Starting sets for motor cars, Electric lighting and engine, 183
Steam condensation, by A. Arnold, 347
Steam pressures, The value of higher, 567
Steam with electrical energy, Generating, 137
Steel on the Rand, Electric, 440
Steel transmissions in the States, 268
Steel, Electric, 39
Steel, Electrolytic pickling of, 104
Steel in New Zealand, Electric, 54
Steel works, A 35-ton wagon hoist for, 363
Steel works electrification, A, 603
Stepney boiler contract, 305
Straits Settlements, Trade statistics of, 47
Sub-station for serving emergency loads, Portable, 480
Sulphuric acid and fertiliser trades, The, 256
Summer time, 184
Super-power station, Proposed, 306
Supply systems, Some transient phenomena in electrical, by Prof. E. W. Marchant, 525
Supply works in invaded districts, 315
Sweden, 60, 178, 394
Sweden—and England, Protection in, 323
Sweden, Copper for electric wire in, 305
Sweden, Electrical development in, 155
Sweden, Electro-metallurgy in, 471
Sweden, Magneto manufacture in, 341
Swiss electrical industry, German influence in the, 99
Switchboards, Instruments for central-station, by G. W. Stubbings, 573
Switchgear standardisation, by C. C. Garrard, 197, 237, 335
Switching examinations, Electric light, 16, 65, 375
Switzerland, German penetration in, 147
Synchronising station, An automatically operated, 279
Syndication in the brass industry, 624

TAR-OIL in Diesel engines, Two essential conditions for burning, by P. H. Smith, 575
Tar oil, Diesel engines and, 280, 477
Tar oils, 136, 280
Tariffs on electrical goods, Foreign and Colonial, 96, 384, 432, 528
Tasmania, Electrolytic production of zinc in, 64
Tasmania, Water-power in, 328
Telegraph and telephone lines, Inductive interference with, 280

TELEGRAPH NOTES—
Bolivia, 350
Brazil, 517
Broken insulators, 62, 591
China, 109
Decoding telegrams, 469
Delivery of telegrams, 423, 517
Denmark, 13
Dutch cables, 150
Dutch wireless, 254, 493
France, 109, 254
Germany, 325, 446
Great Western Railway, 62
High-speed wireless, 614
Illicit wireless, 230
Imperial wireless system, 591
India, 134
Italy, 109
Japan, 13, 254
Lag in wireless time signals, 303
Long-range wireless, 84
Mexico, 517
Motor-cycle wireless, 62
New telegraphic printer, 350
Night telegrams, 205
Norway, 351
Pacific cable, The, 13
Peru, 109, 254
Rumania, 493
Russia, 230
Société de Radio-Télégraphie, 350
South America, 423
Spain, 277, 447
Sweden, 351, 493
Telegraphs and telephones in 1917, 134, 373
United States, 84, 109, 423, 541, 614
Wireless equipment of submarines, 205
Wireless operators' demand, 85, 493, 517
Wireless telegraphy, 230

Telephone exchange, Leeds automatic, 483
Telephone exchange transfers and their organisation, by F. G. C. Baldwin, 172
Telephone lines, Inductive interference with telegraph and, 280

TELEPHONE NOTES—
Australia, 13, 325
China, 541
Egypt, 134
France, Telephones in, 389

TELEPHONE NOTES—*continued.*
Germany, 446
Guernsey, 205
Halifax, 205
Hull telephones, 614
India, 134
Japan, 469
Leeds telephone service, 41, 159, 277, 469
London Telephone Directory, 134
Motor cycles in telephone service, 159
South Africa, 303, 469, 541
Spain, 446, 517
Telephones in 1917, Telegraphs and, 134, 373
United States, 351, 423
Uruguay, 159
Wireless telephony, 134

Telephones, Sound range, 617
Temperature coefficient of pure annealed copper, The standard resistance and, by H. Savage, 486
Temperature effects in D.C. meters, by G. W. Stubbings, 195
Temperatures in large A.C. generators, Operating, 488
Terminals for split conductor cables; Joint boxes and, 3, 65
Terrestrial magnetism, 568
Test upon rubber gloves, High-pressure, 305
Testing earth resistance, Method of, 398
Tests, Dielectric, 356
Thermo-couples, Calorised iron for, 184
Time signals between the Eiffel Tower and Switzerland, 185
Time signals, Electric, 111
Tin and Tungsten Research Board, 231
Tin, Electrolytic recovery of, 470, 617
Toulouse, The University of, 542
Track construction methods employed in street widening, 472
Trade Advisory Committee, Overseas, 393
Trade after the war, Overseas, by A. Stewart, 390
Trade and industrial banks, After-war electrical, 273
Trade associations, 601
Trade, Australian electrical, 465
Trade Boards Bill, The Employers' Parliamentary Council and the, 542
Trade combinations, Export, 483
Trade Commissioners, Our, 74
Trade expansion scheme, Export, 531
Trade, Foreign, 63, 182, 278, 398, 495, 591
Trade, Foreign languages and, 458
Trade in China, Competition in electrical trade in, 610
Trade marks, Patents and, 182, 305
Trade mission, A Government, 136
Trade of the future, Overseas, 218, 257
Trade organisation development, 351
Trade, Our policy on overseas, 387
Trade, Overseas engineering, 385
Trade policy, Balfour report on post-war, 387, 409
Trade relations, Anglo-Italian, 131
Trade representation abroad, 538
Trade statistics of Brazil, 490
Trade statistics of Siam, 370
Trade statistics of the Straits Settlements, 47
Trade, The enemy in, 506
Trade, The Institution of Electrical Engineers and foreign, 338
Trade Union, An enlightened, 110
Trade with Siberia, Electrical, 39
Trades after the War, The electrical—Report of the Departmental Committee, 578, 581, 606
Trades after the war, The engineering, 593
Trades Benevolent Institution, The Electrical—Annual meeting, 455
Trades, Whitley Committees for less organised, 266
Trading with the Enemy—Report of the Board of Trade Committee, 512
Training disabled men, 135, 424, 471, 566, 593
Training of engineer officers, 481
Tramcar conductress complimented, 255
Tramway crane, 543
Tramway managers and electrical engineers, Salaries of, 377
Tramway Managers, Metropolitan Association of, 119, 397

TRAMWAY NOTES—
Accrington, 253, 276
Argentina, 13, 62
Ashton, 38, 133, 395
Audenshaw, 350
Australia, 13, 62, 325, 350, 468
Ayr, 373
Bath, 540
Belfast, 134, 229, 445, 468, 492
Bingley, 613
Birmingham, 38, 253, 276, 303, 324, 373, 422, 540, 613
Blackburn, 13, 84, 134, 158, 303, 350, 445, 540
Blackpool, 205, 324, 445, 492, 540
Board of Trade Tramway Conferences, 204, 229, 565
Bolton, 229, 253, 324, 422, 492, 540, 565
Bootle, 253
Bournemouth, 445
Bradford, 13, 134, 158, 181, 276, 303, 350, 373, 395, 445, 468, 540, 590
Brighton, 590

TRAMWAY NOTES—*continued.*
Bristol, 422
Burnley, 62, 373, 395, 422, 468
Burton-on-Trent, 516
Bury, 205, 395
Canada, 445, 516, 540, 590
Cardiff, 422, 445, 613
Carlisle, 350
Colne, 134, 324
Colwick, 108
Continental, 62, 134, 253, 468, 492
Cork, 324, 422
Croydon, 158, 517
Darlington, 253, 324, 565
Darwen, 229, 324, 468
Denmark, 468
Doncaster, 303, 324, 396
Dover, 590
Dronfield, 62
Dublin, 277, 324, 422, 445
Edinburgh, 158, 229, 303, 492, 613
Elland, 517
Fuel economy, 396, 517
Galway, 445, 613
Germany, 468
Glasgow, 181, 205, 253, 324, 396, 517, 541, 613
Gloucester, 325
Halifax, 13, 38, 84, 158, 229, 325, 350, 373, 396, 422, 445, 541, 565
Harrogate, 181
Hebden Bridge, 108
Heywood, 422
Higher fares on tramways, 277, 373, 422, 614
Huddersfield, 396, 445, 492, 541
Hull, 229, 253
Hyde, 445
Ilford, 492
Japan, 468
Keighley, 62, 84, 108
Kettering, 468
Kilmarnock, 442
Lancaster, 134, 373
Lancashire and Cheshire and N.W. Tramways, 13, 62, 446
Leeds, 13, 62, 84, 134, 159, 205, 277, 303, 325, 350, 396, 422, 446, 492, 541
Leicester, 446, 565
Leyton, 422
Liverpool, 84, 134, 158, 205, 253, 422, 468, 541, 565
Llandudno, 205
London, 62, 84, 108, 134, 350, 373, 396, 422, 446, 468, 492, 517, 541, 590, 613
London County Council, 84, 108, 134, 350, 446, 468, 517, 541, 590, 614
Londonderry, 469
Longridge, 469
Lowestoft, 396
Manchester, 159, 253, 373, 422, 469, 565, 590
Mansfield, 13
Mexico, 492
Middlesbrough, 181
Morecambe, 62, 205, 373
Morley, 446
Nelson, 422, 469, 492
New Zealand, 591
Northampton, 422
Norwich, 134
Nottingham, 303
Oldham, 38, 159, 253, 325, 350, 446, 565
Otley, 591
Padiham, 493
Parcels service, 303
Plymouth, 253
Potteries, 541
Pontypridd, 108
Preston, 422, 493, 541
Ramsbottom, 469
Rawenstall, 205, 325
Rochdale, 159, 181, 205, 350, 396
Rotherham, 446, 565
Russia, 253
Salford, 303, 446
Scarborough, 614
Sheffield, 565
South Africa, 373, 541
South Shields, 159
Southend-on-Sea, 62, 422, 517
Southport, 84, 181, 205, 229, 253, 352, 373
Spain, 134
Spen Valley, 325
Stalybridge, 109
Stoke-on-Trent, 229, 446
Sunderland, 134, 469
Swansea, 62, 565
Threatened tramway strike, 229, 254
Traffic reductions, 373
Tramcar drivers, 303
Tramway and vehicle workers' conference, 614
Tramway statutory maximum fares, 565, 614
Tramway wages, 13, 68
United States, 446
Walthamstow, 229, 565
Warrington, 469, 541
West Ham, 109
Whitby and Monkseaton, 433
Wigan, 38, 250, 591
York, 159, 565
Yorkshire (West Riding), 109, 396

Tramway rails, The Sandberg treatment of, 316
Tramway requirements, London County Council, 308
Tramway workers and industrial councils, 536
Tramways Committee, The Board of Trade, 122, 162, 184, 209
Transformer analogy, A novel, by C. W. Marshall, 27
Transformers, Aluminium in, 292
Transformers, Large single-phase, 472
Transient phenomena in electrical supply systems, Some, by Prof. E. W. Marchant, 525
Triple-concentric to three-core lead-covered cable, Joints on, by P. Wardle, 389
Truck service in Chicago, Electric, 263
Trucks, Electric industrial, 40
Tubular earths for lightning conductors, by K. Hedges, 411
Tungsten and molybdenum wires, 131
Tungsten lamps, "Overshooting" with, 480
Tungsten Research Board, Tin and, 231
Turbine, A large high-speed Francis, 358
Turbine blades, Corrosion of, 376
Turbine contract for Glasgow, Dick, Kerr, 274
Turbine, Electric ship propulsion by the Ljungstrom, 459
Turbine, The world's largest, 471
Turbine wrecked, A 35,000-KW., 326, 341
Turbines, Large steam, 388
Turbines, Observing blade clearance in, 440
Turbo-alternator rotor, The mechanical design and specification of the, by S. F. Barclay, 295, 319, 357
Turbo-alternators, Maintenance of, 494
Turbo-generator, A 75,000 H.P., 518

UNDER-production, Overwork and, 482
"Union" Electric Co. of Australia, 420
Unipolar induction, 351
United States Engineering Council, 390
United States, Linking-up in the, 374
United States, Magnesium in the, 376
United States ordnance base in France,, 208
United States, Price of aluminium in the, 227
United States, The electrical industry in the, 261
United States, The metric system in the, 464
United States, The year's progress in the, 239
United States, Water-power in the, 184

VALUE of "G." in engineering and physical work, 494
Van, London and North-Western Railway electric parcel, 600
Vehicle attachment, An electric, 543
Vehicle Committee, The work of the Electric, 270, 518
Vehicle costs, Municipal electric, 137
Vehicle progress, Electric, 328, 613
Vehicles, Long-lived electric, 110
Vehicles, "Self-delivery" of electric, 593
Vickers, Ltd., The peace time activities of, 424
Volunteer notes, 16, 39, 63, 87, 111, 137, 160, 182, 206, 231, 255, 278, 304, 326, 352, 376, 399, 425, 447, 470, 494, 518, 542, 566, 592, 615

WAGES, Adjustment of, 213
Wages awards, 256, 278
Wages, Dublin electricians', 326
Wages, Engineering, 616
Wages in the gas industries, 207
Wages of central station employés, 14
Wages of electrical employés, 63
Wagon hoist for steel works, A 35-ton, 363, 404
War allowances to municipal "Old Bones," 374
War Bonds Week, Business Men's, 161

WAR ITEMS—
After-meeting refreshments, 393
After-war Appointments Department, 514
Aliens and national service, 154
American Bosch Co., 489
American war notes, 587
Appointment Board for demobilised professional men, 489
Askwith award and uncertified undertakings, 537
Australian electrical trade, War effects on, 465
Birmingham, Tank Week at, 35
Blackburn electricity staff's war savings, 562
Bolting the door against Bosch, 587, 609
Bombs to Switzerland, 514
Building after the war, 537
Canadian lighting economies, 130
Canadian war measures, 154
China, Exports to, 35, 86, 154, 177, 249, 301, 369, 393, 514
Coal shortage in Germany, 86, 273
Coal shortage in Prague, 86
Control after the war, 587
Control of imports and exports, 58

WAR ITEMS—*continued.*
Copper and aluminium in Germany, 393
Danish industries at a standstill, 86
Defence of the Realm Tramway Regulation, 489
Demobilisation plans for munition workers, 419
Discharged soldiers as tram drivers, 201, 369
Electric lamp glass control: Revised order, 443
Electric supply and the Red Cross, 443
Electric supply staffs and national service, 249
Electrical Co., The, 489
Electrical lieutenants, 465
Electricity supply from the public mains, 346
Enemy businesses to be wound up, 323
Entertaining wounded soldiers, 514, 537, 587
Excess profits on magneto manufacture, 154
Exemption applications, 10, 35, 58, 86, 106, 130, 154, 177, 201, 226, 250, 273, 301, 322, 346, 369, 393, 419, 443, 465, 490, 514, 537, 562, 587, 610
Exemptions withdrawn, 346
Exports from America, Restricted, 86
Exports to China, 35, 86, 154, 177, 201, 249, 301, 369, 393, 514
Exports to Switzerland: Prohibition, 609
Federation of American Industries, 587
French after-war resources, 587
Genoa treason charge, 231, 301
German electrical industry during the war, 226
German electricity supply undertakings, League of, 609
German industrialists' plans, 225
German power station, Destruction of, 14
German propaganda, 562
German stocks in neutral countries, 610
Germany and raw materials, 201
Germany, Fires in, 494
Glasgow war savings scheme, 369
Halifax roll of honour, 489
Hamburg electricity works in difficulties, 47
Hull Corporation electricity staff, 443
Industrial Council, A German, 201
Krupps, The fire at, 35
Labour in Germany after the war, 346
Light and power—a war regulation, 10
Lighting and power restrictions, 327
Lighting conditions in Petrograd, 58
Lighting economy in barracks, 514
Machine tools and woodworking machines, 610
Ministry of Munitions and mica, 369
Ministry of Munitions and retort carbon, coke oven carbon, and pitch coke, 393
Ministry of Munitions and small tools, 369, 443, 465
Ministry of Munitions and tin, 419
Ministry of Munitions boiler order, 443
New York electric signs, 225
Non-ferrous metal licences, 255, 538, 587
One-man businesses, 106, 256
"Over There," More from, 154, 177, 488
Petrograd, Life in, 86, 225
Power station bombed, 514
Protected occupations, Schedule of, 106
Rathenau, The apprehensive, 424
Raw Asbestos Order, 35
Raw materials after the war, 154, 201
Reconstruction Advisory Council, 201
Reconstruction in Belgium, 419
Restricted Occupations Order revoked, 443
Restrictions in retail trading, 154
Restrictions relating to electrical converter plant, 346
Rome, Electrical restrictions at, 10
Russia, Trading with, 587
Russian electrical works confiscated, 154
Shop lighting restrictions, 41
Strike at Mülheim, 610
Swedish export prohibitions, 563
Switzerland prohibition, Exports to, 609
The 1886 company confiscated by Bolsheviks, 154
Trading with Russia, 587
Trading with the enemy, 35, 58, 86, 130, 177, 225, 273, 301, 346, 393, 443, 465, 489, 514, 537, 587
Tramway and electricity managers and military service, 610
Tramways and war bonus, 562
Tramways in war time, 10
Tramways of Leipzig, The, 86
Uruguay, 609
War Loan subscriptions, 273
War committees, New, 106
War-time economy must be permanent, 225
Westinghouse war fund, 106

Water-power, American, 315
Water-power, British, 121

Water-power Committee, 616
Water-power developments in Canada, 389, 470
Water-power in Co. Donegal, 278
Water-power in Great Britain, by A. Newlands, 125
Water-power in Tasmania, 328
Water-power in the U.S.A., 184
Water-power in war time, 616
Water-power legislation, Russian, 184
Water-power reports, New Zealand, 70
Water powers, The utilisation of Bavarian, 304
Waterways, Inland, 255
Welding in Italy, Electric, 394
Welding in the building of ships, Electric, 472
Welding repairs, Electric, 328
Welding systems, Notes on, by Capt. J. Caldwell, 77, 117, 501
Welfare work at Fuller's Works, 64
Welfare work, London Underground Railways and, 472
Whitley Committees for less organised trades, 266, 352
Whitley Councils, 146
Whitley recommendations, The—A matter of urgency, 50
Whitley reconstruction, 434
Whitley Report, The, 137, 305, 425
Whitley Report, Birmingham manufacturers and the, 161
Wigan, Electric steel at 255
Wills, 113, 185, 618
Wire drawing industries, The, 362
Wiring rules, I.E.E., 352, 495
Wireless engineer, How to become a, 542
Wireless chain, The Imperial, 265
Wolverhampton, Electrical industry at, 589
Women and electricity, 88
Women's work, Exhibition of, 495
Work for men blinded in the war, 212

X-RAY apparatus, 161

ZINC in Tasmania, Electrolytic production of, 64

Printed by WM. CATE, LTD., 147-150, Gt. Saffron Hill, E.C., and Published by the Proprietors, H. ALABASTER, GATEHOUSE & KEMPE, 4, Ludgate Hill, E.C. 4.